CLASS 188, BRAKES

SECTION I - CLASS DEFINITION

This class includes means for retarding the motion of or stopping machines, including vehicles, both rail and road, and shafts, wheels, pulleys, or other moving mechanisms, by friction, by positive engagement of elements, or by the internal resistance of a fluid or a field of force. Citations from other classes indicating the limits of this class will be found under the various subclass definitions.

SECTION II - LINES WITH OTHER CLASSES AND WITHIN THIS CLASS

Class 192 is the generic locus for clutches and brakes, and see the Class Definition of Class 192 for further discussion of clutches and brakes.

Vehicle shock-absorbers are included in this class unless of the type which flex or put stress upon a spring or springs. These latter are found in Class 267, Spring Devices.

SECTION III - REFERENCES TO OTHER CLASSES

SEE OR SEARCH CLASS:

3, Artificial Body Members, subclass 26 and 28 for knee joints equipped with brakes.

74, Machine Element or Mechanism, subclasses 813+ for indexing assemblies of general utility including means to prevent or hold against rotation, and appropriate subclasses, especially subclasses 640+ for brakes and/or clutches used to modify or control a gearing organization, where specific gearing structure is claimed.

92, Expansible Chamber Devices, appropriate subclasses for an expansible chamber device, and particularly subclasses 8+ for a means to control the flow of a nonworking arresting fluid for a working member, subclasses 15+ for a releasable stop or latch means to arrest the movement of a working member. For a statement of the line between Class 92 and Class 188, see References to Other Classes, in the Search Class note for Class 188, in the class definition of Class 92.

180, Motor Vehicles, subclasses 6.2+ for a motor vehicle which is steered by creating a difference between the driving effort developed by one or more traction elements located on one side of the vehicle and the driving effort developed by one or more traction elements located on the other side thereof (e.g., by braking the element or elements on one side); and subclass 197 for a motor vehicle which is provided with means for detecting wheel slip during vehicle acceleration and controlling it by reducing the power applied to the wheel, and see (1) Note thereof regarding the possible involvement, additionally, of a change in a braking condition.

182, Fire Escape, Ladder, or Scaffold, subclasses 5+ , 72, 191, and 192 for brakes or retarders which engage a strand of a device of that class, and subclasses 75, 231, and 236+ for brakes or retarders associated with a winding reel of a supple escape.

242, Winding, Tensioning or Guiding, subclasses 243+, 285+, 381+, 382+, 385+, 396+, 419+, 421+, and 422+ for a brake in a winding, unwinding, or similar environment.

305, Wheel Substitutes for Land Vehicles, subclass 9 for brakes combined with wheel substitutes. Class 305 takes the combination of a wheel substitute and a brake therefor if some wheel substitute structure is claimed. The mere nominal recitation of a wheel substitute in the claim is not sufficient wheel substitute structure to be classified in Class 305.

310, Electrical Generator or Motor Structure, subclass 93 for brakes wherein the braking force is transmitted solely by means of an electromagnetic field between the brake and the braked elements.

318, Electricity: Motive Power Systems, subclasses 362+ for motor braking control. This class (318) takes braking arrangements for electric motors and includes friction braking, plugging, dynamic braking and magnetic braking.

475, Planetary Gear Transmission Systems or Components, for brakes and/or clutches used to modify a planetary gearing organization.

477, Interrelated Power Delivery Controls, Including Engine Control, for interrelated control between an engine and a transmission, clutch, or brake.

SUBCLASSES

1.11 WITH CONDITION INDICATOR:

This subclass is indented under the class definition. A device including means automatically responsive to a predetermined condition of the brake for sending a signal indicating the condition to an operator.

(1) Note. This subclass includes only patents claiming both significant brake structure and an indicator.

SEE OR SEARCH CLASS:

73, Measuring and Testing, appropriate subclasses, especially subclasses 121+ for a nonelectric brake condition indicator wherein no significance is attributed to brake structure.

340, Communications: Electrical, subclasses 453+ and 457.3 for an electric automatic brake condition indicator wherein no significance is attributed to brake structure.

1.12 TO RETARD ROLLING OF CASTER:

This subclass is indented under the class definition. A device including a small roller member (e.g., a wheel or ball) mounted for rotation about a central axis and adapted to support a heavy object (e.g., a piece of furniture), and also including means to brake the rotation of the member.

SEE OR SEARCH CLASS:

16, Miscellaneous Hardware, subclass 35 for a caster having a lock to prevent swiveling.

2 Includes brakes for vehicles not specifically provided for in other subclasses, including vehicle-brakes.

3 Includes brakes for trains of nonrail vehicles.

(1) Note. Where the braking action is initiated by the relative action between the vehicles of the train, the patent will be found in this class, subclass 112. Where the relative motion is between the draft-animals and the vehicle, see this class, subclasses 115 to 118, and 120 to 123.

SEE OR SEARCH CLASS:

280, Land Vehicles, subclasses 400+ for trains of road vehicles, especially subclasses 427+ for interrelated brake, landing gear and couplings in semi-trailers.

303, Fluid-Pressure and Analogous Brake Systems, subclass 7 for a fluid pressure brake system for a train divided into a plurality of sections, the fluid being distributed to the sections in a different manner.

4 Includes brakes for nonrail vehicles which act on the wheel and ground.

(1) Note. Brakes of this description usually are applied between the wheel and the ground.

SEE OR SEARCH THIS CLASS, SUBCLASS:

36, for chocks applied to rail-vehicles.

SEE OR SEARCH CLASS:

70, Locks, subclass 18 for patents for wheel-chocks attached to the wheel.

5 Brakes for nonrail vehicles applied to the ground, either to check the forward motion of the vehicle or to prevent side motion or skidding.

6 The brake member is pointed and penetrates the surface of the ground.

SEE OR SEARCH CLASS:

280, Land Vehicles, subclass 188 for ground-engaging devices that pull on the horse-rein.

7 Brakes for nonrail vehicles which contact or penetrate the surface of the earth for the purpose of preventing motion when the vehicle-body is used as a machine-support.

SEE OR SEARCH CLASS:

254, Implements or Apparatus for Applying Pushing or Pulling Force, subclasses 418+ for vehicle attached jacks.

8 Brakes for sleds.

9 Brakes for four-wheeled road-vehicles usually known as “farm” or “lumber” wagons.

10 The brake engages all the four wheels of the wagon.

11 Brakes in which there is no beam and the brake-shoe is supported directly by the brake-applying lever or where the beam is divided into two parts.

12 The brake is supported directly by the running-gear and is unaffected by the rise or fall of the body or box.

13 The brake is supported directly by the running-gear and there is no beam or the beam is divided.

14 A wagon brake in which the operating mechanism is extended upward to clear the load.

15 Wagon brakes in which the portions of the divided beam are withdrawn a considerable distance from the wheel upon release of the brake.

16 Brakes that may be separately applied to the independently-rotating rear wheels of a nonrail vehicle.

SEE OR SEARCH CLASS:
303, Fluid-Pressure and Analogous Brake Systems, subclass 9.61 for separately and simultaneously controlled multiple motor systems.

17 Brakes applied to the wheel-attached hub or disk on the axle of a nonrail vehicle.

(1) Note. The parallel subclasses for rail-vehicles are subclasses 58 and 59 below.

SEE OR SEARCH THIS CLASS, SUBCLASS:
71.1+, for disclosure of an axially movable brake element for retarding rotation of a wheel (e.g., disc brake).
218, for the disks or surface to which these brakes are applied.

18 Hub or disk brakes adapted to a motor-vehicle.

(1) Note. The device in this subclass usually include the structure of the axle (e.g., steerable axle), frame structure in addition to hub, or disc brake structure with mounting means for the brake structure in relation to the other vehicle components.

SEE OR SEARCH THIS CLASS, SUBCLASS:
58, for disc brakes for railway vehicles which brakes are applied to the non-tread surface of the traction wheel or to a disk on the axle.

19 Brakes adapted to carts with two wheels.

20 Brakes for children's carriages or perambulators.

SEE OR SEARCH CLASS:
280, Land Vehicles, subclass 87.01 for brakes for children's coaster-wagons.

21 Brakes for the platform type of trucks.

22 Brakes for two-wheeled platform-trucks.

23 The brake contacts with the ground.

24.11 Velocipede (e.g., bicycle, etc.):
This subclass is indented under subclass 2. Apparatus which is adapted to be mounted upon a wheeled vehicle of the type which is propelled by a person operating the vehicle (e.g., a bicycle, tricycle, etc.) and which retards motion of the vehicle by applying braking force to one or more of its wheels.

24.12 Including mechanism for opposed gripping of wheel rim or tire:
This subclass is indented under subclass 24.11. Apparatus including a pair of brake components (e.g., brake pads) carried by an actuating means (e.g., a caliper mechanism), wherein the actuating means is adapted to move the pair of brake components into opposed frictional engagement with sides of either a rim of the wheel or a tire mounted thereon.

24.13 Wheel rim configured to cooperate with components:
This subclass is indented under subclass 24.12. Apparatus having a wheel rim particularly designed or constructed to enhance its coaction with the components.

24.14 Having means to increase braking force (e.g., self-energizing brake, etc.):
This subclass is indented under subclass 24.12. Apparatus including automatically operating means to increase the effective force exerted upon the vehicle when the brake is actuated.

(1) Note. Common to this subclass, and those indented hereunder, is a vehicle having at least one caliper-type brake and means for automatically increasing the effective braking force upon the vehicle without proportionately increasing the force exerted upon the actuator by the vehicle's operator. A so-called self-energized brake is one type of this subject matter.

24.15 Variable leverage actuator:
This subclass is indented under subclass 24.14. Apparatus wherein the actuating means includes a plurality of caliper arms, each carrying a component, which gives a varying mechanical advantage to the brake as the components move from their inoperative positions to their fully operative positions.

24.16 Plural brakes having common actuator:
This subclass is indented under subclass 24.14. Apparatus on a vehicle which has a plurality of brakes, and means interconnecting the brakes so that actuation of one effects similar actuation of the other.

24.17 Actuation controlled by back-pedalling:
This subclass is indented under subclass 24.12. Apparatus for use on a vehicle wherein the operator propels the vehicle by turning a sprocket in one direction by means of a pedal arrangement, wherein the brake is actuated by turning the sprocket in the other direction.

24.18 With means to lock brake in actuated position:
This subclass is indented under subclass 24.12. Apparatus having means whereby the brake is constrained to remain in engagement with the wheel rim or tire after initial actuation without continued manual actuation.

SEE OR SEARCH THIS CLASS, SUBCLASS:
83, for a wheel brake which is continuously operated.
265, for a device for holding a brake in a set position (e.g., set position of brake actuation).
353, for a fluid operated brake with means to trap fluid in the brake system to hold the brake applied.

24.19 Having means to adjust spacing between brake component and wheel rim or tire:
This subclass is indented under subclass 24.12. Apparatus including means for selectively changing the distance between at least one of the components and the wheel rim or tire when the brake is in its inoperative position.

24.21 Having center-pull, cable-type actuator for mechanism:
This subclass is indented under subclass 24.12. Apparatus wherein the brake-actuating means includes a cable adapted to move along its longitudinal axis when it is actuated to operate the brake, and the longitudinal axis of the cable passes through the symmetrical center of the brake components.

(1) Note. The elongated means may comprise, for example, a rod, a chain, or a cable.

SEE OR SEARCH THIS CLASS, SUBCLASS:
344, for a velocipede brake having a hydraulic actuator.

24.22 Specific actuator element structure:
This subclass is indented under subclass 24.12. Apparatus wherein significance is attributed to a particular design or construction feature of at least one part within the brake-actuating means.

(1) Note. Disclosures found in this subclass include a caliper arm, per se, hinge means for pivotally connecting caliper arms, etc.

25 The brake-shoe is a cylinder or other rotating body.

26 Brakes are applied to a wheel-attached hub or to a disk on the axle.

SEE OR SEARCH THIS CLASS, SUBCLASS:
71.1+, for disclosures of an axially movable brake element for retarding rotation of a wheel (e.g., disc brake).

27 The brake is applied to the wheel that turns with the fork of the velocipede.

SEE OR SEARCH THIS CLASS, SUBCLASS:
194, for brakes applied to pivoted wheels turning with reference to the relatively stationary brake-support.

28 The brakes are applied to the diametrically-opposite sides of a nonrail-vehicle wheel.

SEE OR SEARCH THIS CLASS, SUBCLASS:
56, for the parallel subclass in rail-vehicles.

29 The brakes are applied on the upper side of the wheel.

30 Brakes applied to the wheels of a nonrail vehicle to prevent retrograde movement.

31 Brakes for nonrail vehicles that positively stop rotation.

(1) Note. Parallel subclasses will be found in subclasses 60 and 69 below.

32 The brakes are located on the ground and not attached to the vehicle.

(1) Note. Chocks are found in this subclass.

SEE OR SEARCH THIS CLASS, SUBCLASS:
62+, for brakes for track guided vehicles mounted on a track and not to the vehicle.

SEE OR SEARCH CLASS:
293, Vehicle Fenders, subclass 7 for a chock block for a vehicle fender device with car control.
410, Freight Accommodation on Freight Carrier, subclasses 4+ for chocks or cradles for the wheel of a vehicle accommodated on a freight carrier during shipment; note subclasses 7+ for structure retaining the vehicle on the carrier which may further include the chock or cradle for abutment purposes; in particular, note the indented subclasses 19+ for hub or axle retainer structure and wherein a wheel chock, as well, may be provided. See too, subclass 30 for a vehicle wheel cradle or chock, absent retainer means; and subclasses 49+ for a cradle or chock for a cylindrical article in transit on a freight carrier and which is not mounted on a stowed vehicle.
D12, Transportation, subclass 217 for a wheel chock.

33 Brakes peculiarly adapted to vehicles running on rails.

34 Brakes for the vehicles of a train operated from one point in the train.

35 The brakes are applied to both the car-wheel and the rail, either simultaneously or successively.

36 The brake is applied between the wheel and the rail.

SEE OR SEARCH CLASS:
104, Railways, subclass 258 for rail-chocks clamped to the rail.
293, Vehicle Fenders, subclass 7 for chock-brakes actuated by a fender.

37 The shoe-chock is in the form of a roller.

38 The brake is applied to the track, not on the rail upon which the wheels run.

38.5 This subclass is indented under subclass 38. Devices wherein a series of detent or stop elements are adjacent the rails arranged in a line parallel to the direction the rails extend and a rail-traversing car or carriage carries thereon an element which is so located that when the car moves along the rails the element will engage one of the stop elements and arrest the car.

(1) Note. The stop elements of this subclass are other than those elements necessary to complete the railway such as crossties, rail connecting plates, rail plates, and the like; the stop elements may be and usually are adjustable in the direction the rails extend.

SEE OR SEARCH THIS CLASS, SUBCLASS:

38, for car-carried devices which are used to engage parts of the railway and see (1) Note.

62+, for car retarders or catchers installed on the trackway and requiring no modification for special construction on the car.

SEE OR SEARCH CLASS:

83, Cutting, subclass 396 for interrelated tool actuating means and means to actuate a stop for a work-mover, and subclass 416 for means to stop a work-conveyer.

104, Railways, subclasses 249+ for trackway-mounted devices arranged to engage and stop or prevent the motion of a car on the rails; in the devices in this class (104) the car is not structurally modified to provide means designed solely to coact with the stop element.

39 The brake-shoe is a wheel or cylinder.

(1) Note. The rotary shoe is in some cases driven in a direction opposite to the rotation of the car wheels.

40 The brake is applied to the portions of the track bounding a channel, usually between the traction-rails.

41 The brakes are applied to the traction-rail.

SEE OR SEARCH THIS CLASS, SUBCLASS:

165, for rail-brakes electrically applied.

SEE OR SEARCH CLASS:

104, Railways, subclasses 202+ for grippers for railways.

187, Elevator, Industrial Lift Truck, or Stationary Lift for Vehicle, subclasses 359+ for a brake carried by an elevator car and engaging shaft structure to stop the car.

42 Brakes applied to a rail of the suspended or mono-rail type.

SEE OR SEARCH CLASS:

104, Railways, subclasses 112+, and 105, Railway Rolling Stock, subclasses 148+ for the specified type of railway structure and car.

43 Brakes in which the rail is gripped by the jaws of a clamp. The rail may be the traction-rail or another.

44 The gripper is automatically acting.

SEE OR SEARCH THIS CLASS, SUBCLASS:

127,

45 The wheel or axis is clamped to the rail to form an anchor.

SEE OR SEARCH CLASS:

254, Implements or Apparatus for Applying Pushing or Pulling Force, subclasses 33+ for examples of rail-clamps.

46 A series of brakes applied to two or more wheels or sets of parallel wheels in tandem and in which the pull is equalized on all the brakes in the series.

SEE OR SEARCH THIS CLASS, SUBCLASS:
56, for clasp-brakes used in this structure.

47 Brakes especially applicable to the two-, four-, or six-wheel trucks of a railway-car.

48 Brakes adapted to the railway-car trucks in which preponderance of the load is on two of the wheels.

SEE OR SEARCH CLASS:
105, Railway Rolling Stock, subclass 184, for the maximum-traction car-truck.

49 The brakes are hung outside for four wheels of the truck and are pulled toward each other.

50 The brake mechanism is so disposed as to leave the center of the truck open for the motor and for other purposes.

51 The brake-beam is divided or the brake-shoe is attached directly to the brake-lever.

52 The brakes are between the wheels of the four-wheel truck and are pushed or pulled outwardly.

53 The beam is divided or the brake-shoe is attached directly to the brake-lever.

54 Locomotive-brake known as the “jam-brake”.

55 Specially applicable to mine-cars.

(1) Note. Other brakes applicable to these cars are found in this class, subclass 57.

56 The brakes are on the diametrically-opposite sides of the wheels.

SEE OR SEARCH THIS CLASS, SUBCLASS:
28, for similar brakes on road-vehicles.
46, for other examples of clasp-brakes.
233, for brake-beams especially applicable to these brakes.

57 Brakes applied to the tops of the wheels.

SEE OR SEARCH THIS CLASS, SUBCLASS:
29, for similar brakes for road-vehicles.

58 The brakes are applied to the nontread surface of the traction-wheel or to a disk on the axle.

SEE OR SEARCH THIS CLASS, SUBCLASS:
71.1+, for disclosure of an axially movable brake element for retarding rotation of a wheel (e.g., disc brake).
218, for the disks or wheel surfaces to which these brakes are applied.

59 The brakes are applied in a direction perpendicular to the braking-surface of the disk. Search This Class, Subclasses 26, 71, 72, and 73.

60 Brakes that positively stop rotation.

SEE OR SEARCH THIS CLASS, SUBCLASS:
31, and 69.

61 Brakes designed to prevent retrograde motion.

SEE OR SEARCH THIS CLASS, SUBCLASS:
30, 81, and 127.

62 Brakes located on the track.

SEE OR SEARCH THIS CLASS, SUBCLASS:
32,

SEE OR SEARCH CLASS:
104, Railways, subclass 26 for railway track brakes for regulating the speed of rolling motion of a freight car along a track.

63 Brakes located on the track that present a positive stop to the vehicle.

64 Brakes applied to a strand or cord and to the wheel or pulley over which it runs.

65.1 Brakes which operate on strands, such as ropes, bands, cords, etc.

(1) Note. The brake structure when claimed, per se, is here even though it is disclosed as moving relative to a stationary strand.

(2) Note. See Class 182, Fire Escape, Ladder, or Scaffold, subclasses 3+ for a torso harness with a strand engaging descent retarder, subclass 11 for an occupant controlled carrier traveling on inclined cable, subclasses 71 and 72 for an occupant-controlled or occupant-weight-controlled descent retarder with a storage device for a supple escape, and subclasses 191+ for a load responsive or occupant actuated brake on a carrier sliding on a single strand.

SEE OR SEARCH CLASS:

242, Winding, Tensioning, or Guiding, subclasses 419+ and 147+ for a brake to retard movement of running material.

254, Implements or Apparatus for Applying Pushing or Pulling Force, subclasses 375+ for a cable-pulling drum having means for preventing or retarding rotation of drum; and subclass 391 for a pulley having a mechanism for retarding or preventing cable movement or element rotation.

267, Spring Devices, subclass 10 for spring devices in which friction means operate on a flexible strap, and subclass 198 for a strand type shock absorber combined with a spring.

65.2 This subclass is indented under subclass 65.1. Brakes which have means for securing the brake structure to some other device.

(1) Note. The securing means may be disclosed for securing a person to the brake for controlled travel down a stationary strand or for securing the brake to a stationary structure to anchor the brake.

65.3 This subclass is indented under subclass 65.1. Devices in which two or more different strand brakes are claimed in combination.

65.4 This subclass is indented under subclass 65.1. Devices in which the strand passes through the brake structure in a devious or tortuous path.

SEE OR SEARCH CLASS:

72, Metal Deforming, subclasses 160+ for metal bending apparatus which treats metal by progressively bending it back and forth by passing it between staggered abutments in opposed rows.

65.5 This subclass is indented under subclass 65.4. Devices wherein a part of the tortuous brake structure is adjustable to vary the applied frictional force or grip.

67 Brakes applied to rods.

SEE OR SEARCH THIS CLASS, SUBCLASS:

77, for a flexible strap brake moving transversely to and toward the axis and partially or wholly encircling a wheel.

SEE OR SEARCH CLASS:

74, Machine Element or Mechanism, subclass 162 for devices for gripping and advancing rods and subclass 531 for friction detents for control levers.

92, Expansible Chamber Devices, subclasses 15+ for a releasable stop or latch means engageable between a piston or piston rod of an expansible chamber device and a fixed part to prevent movement of the piston.

226, Advancing Material of Indeterminate Length, appropriate subclasses for methods of, and apparatus for, feeding material without utilizing the leading or trailing ends to effect movement of the material.

254, Implements or Apparatus for Applying Pushing or Pulling Force, subclasses 22 through 24 , 31, 106+, 210, and 245 for analogous structure for gripping, advancing, and/or holding in position a traveling bar or rod.

68 Brakes applied frictionally and positively, either successively or simultaneously.

SEE OR SEARCH CLASS:

74, Machine Element or Mechanism, subclasses 813+ for turrets which may have both positive and friction locking means.

192, Clutches and Power-Stop Control, subclasses 53.1+ for similar action in clutches.

69 Brakes for wheels that positively stop rotation.

SEE OR SEARCH THIS CLASS, SUBCLASS:

31, and 60.

SEE OR SEARCH CLASS:

74, Machine Element or Mechanism, subclasses 813+ for turrets which may have a positive locking means.

70 Wheel-brakes moving parallel and transversely to axis of rotation.

71.1 This subclass is indented under the class definition. Motion-retarding means wherein the motion to be retarded is rotation of a wheel, pulley, disc, or an analogous member rotating about an axis and having a radially-extending surface, and wherein said means includes a component with the following characteristics: (a) it is supported to be adjacent to said member, but substantially fixed against rotation therewith; (b) it has a friction surface complementary to said radially-extending surface, but normally spaced away therefrom; and (c) it may be moved in a direction parallel to said axis to effect mutual contact of the complementary surfaces, whereby upon occurrence of said contact, the rotation of said member will be retarded.

(1) Note. The term “radially-extending surface” includes a conical or frustro-conical surface as well as a planar surface that is perpendicular to the axis of rotation.

(2) Note. Patents in this subclass (71.1) usually claim a housing that supports a disc-brake assemblage, or the means for mounting such a housing, but omit structure that would justify placement into one of the indented subclasses.

SEE OR SEARCH THIS CLASS, SUBCLASS:

17, 26 and 58, for disclosure of a hub or disc brake acting on a vehicle, velocipede and railway axle, respectively.

SEE OR SEARCH CLASS:

242, Winding, Tensioning, or Guiding, subclasses 302+, 381+, 396.9, and 423+ for an axially applied brake for retarding a spool or the like.

71.2 This subclass is indented under subclass 71.1. Apparatus provided with a clutch that connects and disconnects said disc or analogous rotating member with respect to a wheel or other analogous rotating member, the rotation of which is to be retarded.

(1) Note. The “clutch” referred to above is one that by itself would be found in Class 192, Clutches and Power-Stop Control, thus needs no further definition. In this subclass, however, the clutch is used solely to connect the wheel, or equivalent rotating load, whose rotation is to be retarded, to a device of this class (188) and these subclasses (71.1+), used to retard such rotation, so that a user may control operation or nonoperation of a brake.

SEE OR SEARCH THIS CLASS, SUBCLASS:

291, for disclosure of an internal-resistance brake connected to a wheel or rotating load by a clutch mechanism.

SEE OR SEARCH CLASS:

192, Clutches and Power-Stop Control, appropriate subclasses, for a clutch, per se, and subclasses 12+, for a clutch and brake that are applied alternatively to drive or to retard a mechanism.

71.3 This subclass is indented under subclass 71.1. Apparatus provided with two of said components, the friction surface of one of the components facing in a direction opposite the friction surface of the other of the components, and further provided with two radially-extending surfaces spaced from one another on said rotating

member, the components being located in the space between the radially- extending surfaces so that each of the radially-extending surfaces is adjacent to but spaced from a corresponding one of the friction surfaces, wherein the components are moved apart from one another to cause each friction surface to contact its adjacent radially-extending surface.

71.4 This subclass is indented under subclass 71.3. Apparatus wherein each of said friction surfaces extends entirely around the axis of rotation of the member.

SEE OR SEARCH THIS CLASS, SUBCLASS:

73.2, for disclosure of an annular disc in a disc brake, and see the notes to subclass 73.2, for the locus of other similar structure.

71.5 This subclass is indented under subclass 71.1. Apparatus provided with a multiplicity of said members and with a multiplicity of said components interleaved between the members such that each friction surface (i.e., on a component) is adjacent a radially-extending surface (i.e., on a rotating member).

SEE OR SEARCH THIS CLASS, SUBCLASS:

71.3, for disclosure of a member having two radially-extending surfaces facing each other and two brake elements therebetween that move away from each other to cause each element surface to contact its adjacent member surface.

73.2, for disclosure of an annular disc used in a disc brake, and see the notes of subclass 73.2, for the locus of other similar structure.

SEE OR SEARCH CLASS:

192, Clutches and Power-Stop Control, subclass 70.2 and 70.21 for a multiple clutch disk arrangement.

71.6 This subclass is indented under subclass 71.1. Apparatus provided with means for reducing in any or all parts of the apparatus defined in subclass 71.1 the heat rise that is caused by use of such apparatus.

(1) Note. It is inherent in any “spot-type” disc-brake (i.e., in which a friction pad of relatively small area is pressed against a rotating disc of relatively large area) that the portion of the disc not adjacent to the pad is exposed to ambient atmosphere and thus is cooled. To be placed in this subclass (71.6) a patent must therefore disclose structure (e.g., a cooling fan, a liquid-circulating system) specifically designated for a cooling function.

SEE OR SEARCH THIS CLASS, SUBCLASS:

218, for a heat shield and for a shield serving both as a dust guard and a heat shield for a brake rotor or drum.

264, for disclosure of cooling or lubricating means in a brake assemblage.

SEE OR SEARCH CLASS:

192, Clutches and Power-Stop Control, subclass 70.12 and 113.1+ for means to cool or lubricate a clutch part.

71.7 This subclass is indented under subclass 71.1. Apparatus provided with means to alter the space between the radially-extending surface and the friction surface, such alteration occurring during a period of noncontact of the surfaces.

(1) Note. See the definition of subclass 72.1 and (1) Note of that definition for the difference between adjustment and actuation.

SEE OR SEARCH THIS CLASS, SUBCLASS:

79.51+, for wear take up or compensating structure for a transversely movable brake.

196+, for disclosure of a slack adjuster similar to brake-wear adjusting means found herein.

SEE OR SEARCH CLASS:

192, Clutches and Power-Stop Control, subclass 70.25 for adjustable means to move a clutch element axially to compensate for wear in the clutch parts

and subclass 111 for a clutch wear compensator.

71.8 This subclass is indented under subclass 71.7. Apparatus wherein the altering means operates without manual intervention of a user of the apparatus.

(1) Note. In this and the indented subclass the actuator itself is moved to approximately the same degree during application of the brake element (i.e., toward the disc) as during retraction of the element (i.e., away from the disc) but a connection between the actuator and the element permits a lesser degree of movement during retraction than during application.

(2) Note. In this subclass (71.8) many patents disclose a connection having differential friction between two elements; that is, friction between two elements causes them to slide together at the same rate in one direction of mutual movement but permits them to slip, one with respect to the other, in the opposite direction of mutual movement.

71.9 This subclass is indented under subclass 71.8. Apparatus wherein the altering means includes a helically threaded member that is caused to turn relative to a mating member in one direction only, thus causing said threaded member to advance along its axis of turning.

(1) Note. Usually the screw rotates by reason of a ratchet fixed thereto that cooperates with a pawl oscillating relative to the screw.

72.1 This subclass is indented under subclass 71.1. Apparatus provided with means to press said component toward said rotating member so that the friction surface contacts the radially-extending surface, the operation of said means being initiated by a user of the brake.

(1) Note. In the operation of a brake or both of the surfaces (i.e., that on the rotating disc and that on the nonrotating brake element) will wear by attrition of the surfaces, thus tending to increase the space that should normally exist between the surfaces during nonoperation of the brake. The actuator that moves the brake element toward the disc for braking usually has only a limited range of operation, thus it is necessary to adjust the brake element toward the disc to compensate for such wear. In most devices the actuator mechanism is separate from the adjustor mechanism, but in all instances the actuator applies the brake whereas the adjuster is operated during nonapplication and the difference is readily apparent.

72.2 This subclass is indented under subclass 72.1. Apparatus wherein said component-pressing means includes mechanism to augment braking pressure applied by said means, the mechanism acting after the initiation of the means by a brake user and also acting without further intervention by the brake user.

(1) Note. Energy for augmenting or increasing brake pressure is usually derived from kinetic energy of the rotating brake disc, as by dragging a brake element with and toward the disc, but may be derived from another source. However, such energy is in addition to that provided by the muscle power of the user.

72.3 This subclass is indented under subclass 72.1. Apparatus further provided with mechanism to withdraw said component away from contact with said rotating member.

(1) Note. Most patents in this subclass disclose a resilient element (e.g., coil spring, "Belleville" washer, rubber block) for urging the brake element away from the rotating element. However, positively-acting means (e.g., fluid pressure, mechanical link, etc.), is also disclosed as having that function.

SEE OR SEARCH THIS CLASS, SUBCLASS:

166+, for a spring applied brake with the release mechanism therefor.

216, for the release mechanism to secure the release of a brake when the applying force is removed.

SEE OR SEARCH CLASS:

192, Clutches and Power-Stop Control, subclass 70.28 for spring means to move a clutch element axially to separate engaged clutch elements.

72.4 This subclass is indented under subclass 72.1. Apparatus wherein said component-pressing means includes a movable disc or cylinder fitted closely within a hollow tube or cylinder and moved by a force applied via a liquid or gaseous medium.

(1) Note. In this and indented subclasses subatmospheric (i.e., "vacuum") pressure is also disclosed as a fluid-pressure medium.

(2) Note. In order to be placed in this subclass, there must be both significant component-pressing means and significant cylinder or tube structure recited in the claims. Nominal component-pressing means and cylinder or piston structure together with more significant seal structure or duct boot structure is found in this class, subclass 370.

SEE OR SEARCH THIS CLASS, SUBCLASS:

151+, for disclosure of a brake operator actuated by fluid pressure.

SEE OR SEARCH CLASS:

92, Expansible Chamber Devices, subclass 98 for a rolling diaphragm of the expansible chamber type with the entire periphery secured to the rigid working member forming the collapsible wall; subclasses 165+ for a guide or seal on the cylinder end portion of a piston or member moved by a piston; subclass 169 for particular details of the cylinder structure; and subclasses 172+ for details of the brake piston, per se.

192, Clutches and Power-Stop Control, subclasses 85+ for a fluid pressure axially actuated, clutch motor.

277, Seal for a Joint or Juncture, for a generic sealing means or process, subclasses 434+ for a piston ring or piston ring expander or seat therefor.

72.5 This subclass is indented under subclass 72.4. Apparatus provided with a plurality of components and with a corresponding plurality of component-pressing means.

(1) Note. In some devices of this subclass (72.5) one cylinder is fitted with two pistons, and each piston actuates its brake element.

72.6 This subclass is indented under subclass 72.4. Apparatus further provided with structure for converting force into motion or for connecting a part movable in one direction to a part movable in another direction or for increasing or decreasing the rate of motion or force of one part with respect to another part.

(1) Note. The mechanical linkage may be used in addition to the fluid-pressure piston (i.e., in a drive train including both fluid-pressure and mechanical elements in series), or be used in substitution therefor (i.e., either the fluid-pressure system is used or a mechanical linkage is used).

SEE OR SEARCH THIS CLASS, SUBCLASS:

106, for brake devices having both a mechanical and a fluid operator.

72.7 This subclass is indented under subclass 72.1. Apparatus wherein said component-pressing means includes a first element moving in a first direction and having a surface angular to said direction, and also includes a second element movable in a second direction and in contact with said surface, whereby movement of said first element in a first direction causes movement of said second element in a second direction.

(1) Note. In the disclosures of this and indented subclasses one or more balls or rollers may be interposed between the first and second elements to reduce friction in the actuator mechanism.

72.8 This subclass is indented under subclass 72.7. Apparatus wherein said first element is rotated or oscillated about an axis and said surface extends substantially radially from said axis

and fully or partially encompasses said axis, and wherein said second element is constrained to move in a direction parallel to said axis, whereby turning the first element causes axial movement of the second element.

SEE OR SEARCH THIS CLASS, SUBCLASS:
71.4, for disclosure of annular brake elements spread apart from each other by helical cams.

72.9 This subclass is indented under subclass 72.1. Apparatus wherein said component-pressing means includes a bar or rigid piece fulcrumed on a pin, said bar being connected to said component and oscillated by a user to effect movement of said component.

73.1 This subclass is indented under subclass 71.1. Apparatus wherein the construction of said component is particularly significant.

(1) Note. Patents in this subclass (73.1) usually claim the composition of the brake element, (e.g., the chemical elements or alloys that comprise the brake element), or the manner or bonding the brake element to a backing pad, or disclose other mechanical details of the brake element, per se, not otherwise provided for.

SEE OR SEARCH THIS CLASS, SUBCLASS:
250+, for the structure of a brake component, per se.

SEE OR SEARCH CLASS:
192, Clutches and Power-Stop Control, subclass 107 for the structure of a clutch component, per se.

73.2 This subclass is indented under subclass 73.1. Apparatus wherein said component includes either a single friction surface or a plurality of separate friction surfaces, but in either case extending entirely around the axis of rotation of the member which the surface will contact.

(1) Note. Included in this subclass are disclosures of a conical or frustro-conical surface, or of a planar radial surface, as well as segments of surface portions spaced circumferentially to form an equivalent conical or planar ring.

(2) Note. The component referred to herein is the stator.

SEE OR SEARCH THIS CLASS, SUBCLASS:
71.4, for disclosure of annular brake elements moved away from each other into contact with complementary rotating surfaces.
71.5, for disclosure of a multiple-disc brake assemblage using annular brake disc and complementary annular rotating members.
218, for rotor or stator structure, per se.

SEE OR SEARCH CLASS:
192, Clutches and Power-Stop Control, subclasses 70.11+, for disclosure of one or more annular elements having similar structure, but used in a clutch-assemblage.

73.31 Retainer for brake element:
This subclass is indented under subclass 71.1. Apparatus provided with means for supporting the component relative to the rotating member, fixing the component against rotation, but permitting movement of the component in a direction parallel to the axis of rotation.

73.32 Having means to facilitate changing brake element:
This subclass is indented under subclass 73.31. Apparatus wherein the supporting means include means particularly intended to minimize the time or effort required to remove and replace the component or some part thereof.

73.33 By manipulation of brake actuator:
This subclass is indented under subclass 73.32. Apparatus including an actuating means for moving the component into contact with the surface of the rotating member, wherein either a rearrangement of parts of the actuating means, or a relocation of the actuating means relative to the supporting means, facilitates removal or replacement of the component.

73.34 Pivotable actuator:
This subclass is indented under subclass 73.33. Apparatus wherein the actuating means is adapted to swivel into an alternate location to provide access to the component.

73.35 Having actuator and means to prevent vibration thereof:
This subclass is indented under subclass 73.31. Apparatus including an actuating means for moving the component into contact with the surface of the rotating member, and means intended to preclude rapid to-and-fro (i.e., vibratory) movement of the actuating means.

(1) Note. Disclosures in this subclass and its indent refer to "squeal", "noise", or "rattle" as undesirable characteristics of disc brakes, and describe means to prevent such characteristics.

73.36 Including means to prevent vibration of brake element:
This subclass is indented under subclass 73.35. Apparatus including an additional means for precluding vibratory movement of the component, or wherein the means for precluding vibratory movement of the actuator has a similar effect upon the component.

73.37 Having means to prevent vibration of brake element:
This subclass is indented under subclass 73.31. Apparatus including means intended to preclude rapid to-and-fro (i.e., vibratory) movement of the component.

(1) Note. Disclosures in this subclass and its indent refer to "squeal", "noise", or "rattle" as undesirable characteristics of disc brakes, and describe means to prevent such characteristics.

SEE OR SEARCH CLASS:
D12, Transportation, subclass 180 for a brake element.

73.38 Spring:
This subclass is indented under subclass 73.37. Apparatus wherein the vibration-preventing means comprises a resiliently deformable member of solid material.

SEE OR SEARCH CLASS:
D12, Transportation, subclass 180 for a brake element.

73.39 Including torque member supporting brake element:
This subclass is indented under subclass 73.31. Apparatus including a stationary member, fixed to a wheel support structure, which receives drag force resulting from engagement of the component with the rotating member, wherein the component is carried by the stationary member.

73.41 Including actuator pivotable in plane parallel to axis of rotation of wheel:
This subclass is indented under subclass 73.31. Apparatus including an actuating means for moving the component into contact with the surface of the rotating member, wherein the actuating means itself is mounted for angular movement about an axis parallel to the radially extending surface.

SEE OR SEARCH THIS CLASS, SUBCLASS:
73.47, for a closed loop type housing which may pivot as defined above.

73.42 And slidable in that plane:
This subclass is indented under subclass 73.41. Apparatus wherein the actuating means is also capable of linear movement in a direction parallel to, or colinear with, the axis of rotation of the member.

73.43 Including actuator slidable in plane parallel to axis of rotation of wheel:
This subclass is indented under subclass 73.31. Apparatus including an actuating means for moving the component into contact with the surface of the rotating member, wherein the actuating means is mounted for linear movement in a direction parallel to, or colinear with, the axis of rotation of the member.

73.44 On axially extending pin:
This subclass is indented under subclass 73.43. Apparatus wherein the actuating means is guided in its sliding movement by a rodlike element which extends through an aperture in the actuating means in the direction of sliding.

SEE OR SEARCH CLASS:

74, Machine Element or Mechanism, subclass 18.2 for a flexible sealing diaphragm attached to a longitudinally reciprocating rod and casing therefor.

277, Seal for a Joint or Juncture, for a generic sealing means or process, subclasses 634+ for a static contact seal for other than an internal combustion engine, or a pipe, conduit, or cable that is a flexible sleeve, boot, or diaphragm.

403, Joints and Connections, subclasses 13+ for guide for a rod or bushing used with a joint or connection of that class.

73.45 Plural pins:

This subclass is indented under subclass 73.44. Apparatus wherein the actuating means is guided in its movement by a plurality of rod-like elements.

73.46 Including actuator fixed on torque member:

This subclass is indented under subclass 73.31. Apparatus including an actuating means for moving the component into contact with the surface of the rotating member, wherein the actuating means carries the movable components, and the means is mounted immovably on a stationary member which is fixed to a wheel support structure and which is adapted to receive torque produced by engagement of the component with the rotating member.

73.47 Having closed loop type housing:

This subclass is indented under subclass 73.31. Apparatus wherein the supporting means comprises a frame having length and width dimensions, an opening in the frame having lesser corresponding dimensions and closed on four sides by the frame, and the supporting means is related to the rotating member in the following manner: (a) an arc of the periphery of the rotating member projects through the opening; (b) the length and width dimensions lie in a plane parallel to and spaced from the axis of rotation; (c) the length dimension subtends the member on a chord thereof; and (d) the width dimension is parallel to the axis of rotation.

74 Wheel-brakes moving transversely to the axis of rotation.

SEE OR SEARCH CLASS:

242, Winding, Tensioning, or Guiding, subclass 301, 381, 396.5+, and 422.4+ for a radially applied brake for retarding a spool or the like.

75 Wheel-brakes opposing on diametrically-opposite sides of the wheel.

SEE OR SEARCH CLASS:

192, Clutches and Power-Stop Control, subclass 73 for opposing type of transversely engaging clutch.

76 Wheel-brakes moving transversely to the axis of rotation and gripping the rim of the wheel.

77 Flexible brakes moving transversely to and toward the axis and partially or wholly encircling the wheel.

SEE OR SEARCH THIS CLASS, SUBCLASS:

26, and 58, for other examples of this brake.

SEE OR SEARCH CLASS:

192, Clutches and Power-Stop Control, subclasses 80+ for a strap type clutch.

78 Brakes moving transversely to and away from the axis and partially or wholly encircling the inner rim of the wheel.

SEE OR SEARCH THIS CLASS, SUBCLASS:

135+, and especially subclasses 140+, for brakes, the braking action of which is due to the momentum of the machine to which the brake is applied.

SEE OR SEARCH CLASS:

74, Machine Element or Mechanism, subclasses 567+ for the structure of cam elements, per se.

79 Multiple sets of expanding brakes arranged serially or in parallel in contact with the inner rim of a wheel.

79.51 Having wear take up or compensating structure:

This subclass is indented under subclass 74. Subject matter which includes a device for adjusting the wheel-brake to reduce slack or make allowance for the removal of any wheel-brake material due to use, i.e., wear of a brake shoe.

SEE OR SEARCH THIS CLASS, SUBCLASS:

71.7+, for means to adjust for wear of an axially movable brake.

196+, for specific slack adjuster structure.

SEE OR SEARCH CLASS:

74, Machine Element or Mechanism, subclass 522 for a manually adjustable lever, per se.

192, Clutches and Power-Stop Control, subclass 70.25 and 111 for a clutch wear compensator.

79.52 Temperature responsive:

This subclass is indented under subclass 79.51. Subject matter including means which reacts to the presence or absence of heat due to braking to affect the adjusting of the wheel-brake.

79.53 Feeler actuated:

This subclass is indented under subclass 79.51. Subject matter including a separate member which senses wear of the brake shoe and activates the adjusting device.

79.54 Actuated in conjunction with other braking element:

This subclass is indented under subclass 79.51. Subject matter wherein the adjusting device is activated in cooperation with a braking part, e.g., a parking brake actuator, separate from any use to primarily operate the brake.

79.55 Actuated by brake operating lever:

This subclass is indented under subclass 79.51. Subject matter including a brake applying arm which is used to activate the adjusting device.

SEE OR SEARCH CLASS:

74, Machine Element or Mechanism, subclasses 425+ where the brake applying are is connected to a worm gear and the worm gear shaft structure is of particular significance and subclasses 458+ for particulars of the teeth of the worm gear and its associated shaft.

79.56 Having separate adjustment actuator mechanism:

This subclass is indented under subclass 79.51. Subject matter having activating means for the adjusting device distinct from the adjusting devices, and any brake applying means, i.e., operator.

SEE OR SEARCH THIS CLASS, SUBCLASS:

79.54, for an adjusting device actuated in conjunction with another braking element, e.g., a parking brake, which may act as a separate activating means.

79.57 Manually operated:

This subclass is indented under subclass 79.51. Subject matter wherein the adjusting device may be directly actuated by a living being.

(1) Note. The adjusting device may also be automatically adjusted during braking.

SEE OR SEARCH CLASS:

74, Machine Element or Mechanism, subclasses 568+ for adjustable cam actuators.

79.58 Brake operator length adjusted:

This subclass is indented under subclass 79.57. Subject matter wherein the adjusting device is part of a brake applying means, i.e., brake operator.

79.59 Mounted between shoe and a support member:

This subclass is indented under subclass 79.57. Subject matter wherein the wheel adjusting device is attached intermediate the brake shoe and a separate holding element.

(1) Note. The support member may also be another brake shoe.

SEE OR SEARCH THIS CLASS, SUBCLASS:

79.63+, for an adjusting device mounted between a shoe and a support member no directly actuated by a living being.

79.61 Causes direct simultaneous adjustment of plural shoes:
This subclass is indented under subclass 79.59. Subject matter wherein the adjusting device is in contact with and produces concurrent transverse extension of more than one shoe.

(1) Note. The shoes are usually adjusted at the brake shoe anchor.

79.62 Located on or in an operator:
This subclass is indented under subclass 79.51. Subject matter wherein the wheel-brake adjusted device is positioned in direct contact with or is part of a brake applying means, i.e., an operator.

79.63 Mounted between shoe and support member:
This subclass is indented under subclass 79.51. Subject matter wherein the wheel-brake adjusting device is attached intermediate the brake shoe and a separate holding element.

(1) Note. The support member may also be another brake shoe.

SEE OR SEARCH THIS CLASS, SUBCLASS:
79.59+, for manually operated adjusting device mounted between a shoe and a support member.

79.64 Between plural supporting shoes:
This subclass is indented under subclass 79.63. Subject matter wherein the wheel-brake adjusting device is attached intermediate to and is solely suspended by two or more brake shoes.

80 Wheel-brakes with rotating shoes.

SEE OR SEARCH THIS CLASS, SUBCLASS:
39, for rotary shoes on track.

82.1 Brakes applied to element rotating relative to stationary elements to prevent retrograde rotation while allowing forward rotation.

(1) Note. These devices are often known as "automatic" or "safety" brakes. They may be considered "automatic" in the sense that their basic structure is such that they necessarily react to apply braking force on rotation in one direction.

(2) Note. The rotating element may be included by name as "hoisting drum", "wheel", etc.

(3) Note. For machines to which the one-way brake is applied, see the appropriate art class. See (2) Note above.

SEE OR SEARCH THIS CLASS, SUBCLASS:
30, for one-way brakes applied to the wheels of a nonrailway vehicle to prevent retrograde movement.
61, for one-way brakes for railway vehicles to prevent retrograde movement.
67, for one-way brakes for reciprocating rod-like members.
290+, for a fluid-resistance one-way brake.

SEE OR SEARCH CLASS:
74, Machine Element or Mechanism, subclasses 111+, for mechanisms provided with parts adapted to impart step by step motion to a unidirectionally driven member, particularly subclasses 144+, for grip units and features, and subclasses 575+, for the structural detail of a pawl or ratchet.
160, Flexible or Portable Closure, Partition, or Panel, subclasses 291+, for flexible closures in which the material is accumulated in the form of a roll and which have means retarding or stopping the rotation of the roll or for holding the roll to prevent undesired rotation.
192, Clutches and Power-Stop Control, subclasses 223+, for devices for the joint control of power transmission and brake in which the application of the brake is automatic in that it requires no separate control operation, subclasses 41+, for clutches which engage in one direction of rotation without manipulating, subclass 51, for multiple associated clutches instrumental in accomplishing the reversal of rotation, and subclasses 116.5+, for stop mechanisms.

242, Winding, Tensioning, or Guiding, subclasses 298+, 382+, 385+, 396.2+, and 410 for a one-way positive brake in a reel or similar environment.

254, Implements or Apparatus for Applying Pushing or Pulling Force, subclasses 266+ for apparatus for hauling or hoisting a load, the apparatus including a driven drum which pulls on or travels along a cable where no more structure is included than relates to the brake device, classification is in Class 188, Brakes.

477, Interrelated Power Delivery Controls, Including Engine Control, for interrelated control between an engine and a transmission, clutch, or brake.

82.2 This subclass is indented under subclass 82.1. Devices in which the direction in which retrograde rotation is prevented is selectable.

SEE OR SEARCH THIS CLASS, SUBCLASS:

82.3, for one-way brakes including means for rendering the brake inoperative to prevent retrograde rotation.

SEE OR SEARCH CLASS:

192, Clutches and Power-Stop Control, subclasses 43+, for clutches which engage in one direction of rotation without manipulation and which are adjustable to drive in either direction.

82.3 This subclass is indented under subclass 82.1. Devices which include means by which a one-way brake may be rendered inoperative to prevent retrograde motion of the rotating element.

(1) Note. The reversible one-way brakes in this class (188), subclass 82.2, include means by which one of two one-way brakes is rendered inoperative while the other is in operating position.

SEE OR SEARCH THIS CLASS, SUBCLASS:

82.2, see (1) Note above.

SEE OR SEARCH CLASS:

74, Machine Element or Mechanism, subclasses 148+, for grip units which form parts of more complex intermittent grip mechanisms and which include means for releasing a gripper from the driven member.

192, Clutches and Power-Stop Control, subclasses 32+, for clutches, the action of which is initiated by manipulation upon which the engagement is completed automatically, and subclass 41 for one-way clutches that may be made operative or inoperative by manipulation.

242, Winding, Tensioning, or Guiding, subclass 299 for a disabler on a one-way positive brake in a fishing reel.

82.34 This subclass is indented under subclass 82.3. Devices in which a disabling device is integral with the element applied to the surface of the rotating element to brake it.

82.4 This subclass is indented under subclass 82.1. Devices having means to withhold the element applied to the surface of the rotating element for braking from contact with the rotating element during forward rotation while not incapacitating the braking element from preventing retrograde rotation.

(1) Note. This feature is usually employed in pawl and ratchet wheel type one-way brakes to hold the pawl from rattling on the ratchet wheel during forward rotation.

SEE OR SEARCH CLASS:

74, Machine Element or Mechanism, subclass 576, for pawls which are held out of engagement with a ratchet wheel during rotation of the wheel in forward direction and moved into engagement with said ratchet wheel on retrograde rotation.

242, Winding, Tensioning, or Guiding, subclass 300 for a rotational responsive positive brake hold out in a fishing reel.

82.5 This subclass is indented under subclass 82.1. Devices in which a one-way brake is claimed in combination with elements other than or in addition to a stationary element, an element rotating relative thereto, and means permitting rotation in the forward direction and reacting on the stationary element to brake the rotating

element when rotation is in the retrograde direction; or in which more than one type of one-way brake is claimed.

(1) Note. This subclass includes, for example, devices which act as a one-way brake and have automatic control as, for instance, having means responsive to the speed of retrograde rotation of the rotating element to augment the action of the brake.

(2) Note. This subclass also includes one-way brakes in combination with an additional brake such as a "service" brake. Where the additional brake and the one-way brake are interconnected with a disabling means for the one-way brake, search this class, subclasses 82.3+.

(3) Note. See the notes to the definition of this class, subclass 82.1, as to combinations of one-way brakes with other devices located in other classes.

SEE OR SEARCH THIS CLASS, SUBCLASS:
82.1, see (3) Note above.
82.3+, see (2) Note above.

82.6 This subclass is indented under subclass 82.1. Devices in which a strip continuously under longitudinal tension flexes on retrograde rotation of the shaft to apply braking force.

SEE OR SEARCH THIS CLASS, SUBCLASS:
77, for flexible brakes moving transversely to and toward the axis and partially or wholly encircling the wheel.

SEE OR SEARCH CLASS:
192, Clutches and Power-Stop Control, subclasses 80+, for transversely engaged exterior clutches in which the exterior transversely moving member is a flexible strap or band.

82.7 This subclass is indented under subclass 82.1. Devices in which a tongue-like element is mounted to swing or bend into braking position upon retrograde motion of the rotating member.

SEE OR SEARCH THIS CLASS, SUBCLASS:
82.4, for this subject matter in combination with means which during the forward rotation of the rotating member acts to hold the pivoted member out of contact with the surface of the rotating member usually to avoid rattling of the pawl on ratchet wheel.

SEE OR SEARCH CLASS:
74, Machine Element or Mechanism, subclasses 575+, for machine elements limited to the structural details of a pawl or ratchet, and see the notes thereto for the classification of combinations including pawls.
160, Flexible or Portable Closure, Partition, or Panel, subclasses 300+, for flexible panels which are accumulated in the form of a roll and which have a brake or stop in the form of a pawl acting on the roll supporting means, or some part carried thereby and rotated therewith for the purpose of retarding or stopping the rotation of the roll, or for holding the roll to prevent undesired rotation.
192, Clutches and Power-Stop Control, subclass 43.1, for one-way engaging reversible automatic clutches in which the engaging elements are pivoted pawls, and subclass 45.1, for one-way clutches in which the engaging element is a wedging pawl or block.

82.74 This subclass is indented under subclass 82.7. Devices in which the swing or bending of the detent member is in a plane containing or parallel to the axis about which the braked element rotates.

SEE OR SEARCH THIS CLASS, SUBCLASS:
82.9, for other one-way brakes for rotating elements in which the braking element moves axially of the axis of rotation.

82.77 This subclass is indented under subclass 82.7. Devices in which the swinging element is carried by the rotating member.

82.8 This subclass is indented under subclass 82.1. Devices in which rotation of the rotating element in the retrograde direction forces a member into jamming position between converging surfaces, one of which is the rotating element, to cause a braking.

SEE OR SEARCH CLASS:
192, Clutches and Power-Stop Control, subclass 45.1, for one-way clutches in which the engaging element is a wedging pawl or block.

82.84 This subclass is indented under subclass 82.8. Devices in which the engaging member is circular in cross-section and rolls into position to exert the braking force.

SEE OR SEARCH CLASS:
160, Flexible or Portable Closure, Partition, or Panel, subclass 297, for flexible panels which are accumulated in the form of a roll and which employ a brake or stop in the form of a ball or roller operating on the roll supporting means or some part secured to and rotating with roller.
192, Clutches and Power-Stop Control, subclass 45, for one-way engaging automatic clutches in which the engaging element is a ball or roller and see the notes thereto for other ball and roller engaging clutches.

82.9 This subclass is indented under subclass 82.1. Devices in which the engaging element moves along the axis of rotation of the element braked to exert the braking force.

SEE OR SEARCH THIS CLASS, SUBCLASS:
82.74, for one-way brakes for rotating elements in which the braking element is a pivoted or flexing detent swinging axially of the axis of rotation.

83 Wheel-brakes applied continuously.

SEE OR SEARCH CLASS:
139, Textiles: Weaving, subclasses 100+.
242, Winding, Tensioning, or Guiding, subclasses 244+ for a continuously applied brake for the spool of a spinning-type fishing reel, and subclasses 422+ and 147+ for a brake to stress running material.

84 The brake is fixed, the part to be braked being moved to the braking member.

85 Wheel-brakes applied and released automatically at equal intervals.

SEE OR SEARCH CLASS:
303, Fluid-Pressure and Analogous Brake Systems, subclass 61 for a brake system intermittently charged with brake fluid.

105 Two or more operating means applied to the same brake.

106 Two or more operators applied to a brake on a nonrail vehicle.

107 Two or more operators applied to a brake on a rail-vehicle.

108 The brake is operated by the weight on a vehicle-step.

109 The brake is operated by the weight on a vehicle or other seat.

SEE OR SEARCH CLASS:
303, Fluid-Pressure and Analogous Brake Systems, subclass 19 for a dead man type brake wherein the brake system is actuated by a vehicle operator becoming unintentionally removed from a vehicle operator seat.

110 Brakes operated by the action of the machine.

SEE OR SEARCH CLASS:
180, Motor Vehicles, subclass 197 as explained in the reference thereto appearing in the definition of this class (188); and subclasses 275+ for a motor vehicle which is provided with a safety-promoting means of a kind which responds to the engagement of a portion of the perimeter of the vehicle with an external object by causing application of the vehicle's brake.

111 The brake is operated by an obstruction or trip located on the ground.

SEE OR SEARCH CLASS:
246, Railway Switches and Signals, subclasses 171+ and 201+.
293, Vehicle Fenders, subclass 5, 6, 7, and 8.

112 Trains of nonrail vehicles on which the brakes are operated upon the occurrence of relative motion between the vehicles.

(1) Note. The brakes in this subclass are frequently termed "over run" brakes.

SEE OR SEARCH THIS CLASS, SUBCLASS:
142, for momentum operated brakes controlled (as distinguished from applied) by draft means.

SEE OR SEARCH CLASS:
280, Land Vehicles, subclasses 400+ for trains of road vehicles, especially subclasses 427+ for interrelated brake, landing gear and couplings in semi-trailers.

113 The brakes are applied to the four wheels of a wagon when the draft-animals hold back.

114 The brakes are automatically applied to the wheel-hubs or wheel-attached disk.

115 Brakes applied to the rear wheels of a wagon by means of mechanism on the tongue when the draft-animals hold back.

116 The brake is applied to the rear wheels by means of a divided beam.

117 The brake is applied to the front wheels of the wagon.

118 The brake on the front wheels is applied by a divided beam.

119 The brake is operated by the rising or falling of the tongue.

120 The brakes on the rear wheels are operated by the relative motion between the tongues and the wagon when the draft-animals hold back.

121 The brake on the rear wheels is applied by means of a divided beam.

122 The brakes are applied to the front wheel.

123 The brakes on the front wheels are applied through a divided beam.

124 The brakes are applied to the railway-car wheels upon relative movement between the cars.

125 The action of the brakes is through the draw-bar.

SEE OR SEARCH THIS CLASS, SUBCLASS:
149+, for momentum operated brakes controlled (as distinguished from applied) by draft means.

126 The action of the brake through the draw-bar is dependent upon the speed of the railway-car.

127 Upon the draft slacking or parting the brake is automatically applied to the track.

128 The brakes of the sled are operated when the draft-animals hold back.

(1) Note. Search subclasses iindented under "Operators, Automatic, Vehicle, Auxiliary mechanism on tongue," for similar action with wagons.

129 Friction-brakes operated upon the rise or fall of the vehicle-body.

SEE OR SEARCH THIS CLASS, SUBCLASS:
297+, for a fluid-resistance shock absorber.

SEE OR SEARCH CLASS:
182, Fire Escape, Ladder, or Scaffold, subclass 235 for a friction brake and occupant-operated mechanisms for applying a brake during descent.
213, Railway Draft Appliances, subclasses 22+.

267, Spring Devices, subclasses 196+ for a similar device combined with or having resilient means for biasing the vehicle parts.

130 The brake member pursues a curved path.

SEE OR SEARCH THIS CLASS, SUBCLASS:
306+, for an arcuately oscillating fluid-resistance shock absorber.

SEE OR SEARCH CLASS:
267, Spring Devices, subclass 215 for a similar devices combined with or having resilient means for biasing the relatively moving vehicle parts.

131 A brake operating to resist turning of a pivoted vehicle-truck.

SEE OR SEARCH CLASS:
280, Land Vehicles, subclass 88, for cases where the steering-gear is associated with brake mechanism, and subclasses 89+ for brakes of this type, both friction and internal resistance.

132 When the connection of the draft-animals to the vehicle is severed, a further pull will serve to set the brake.

SEE OR SEARCH CLASS:
280, Land Vehicles, subclass 188.

134 The braking action is due to change in relative motion of the different parts of a machine.

135 The braking action is due to the momentum of the machine to which the brake is applied.

136 A brake-shoe is wedged between a holder and the body whose motion is to be checked.

137 The brake is held from action by electrically-controlled means.

138 The momentum electrically controlled brake is applied to a vehicle.

SEE OR SEARCH THIS CLASS, SUBCLASS:
161+, for brakes operate by an electromagnetic device wherein the braking action my be due to the momentum of the machine (e.g., revolving brake drum brake rotor) to which the braking action is applied.

SEE OR SEARCH CLASS:
192, Clutches and Power-Stop Control, subclasses 84.1+ for an electrically actuated clutch with the particular structure of the electromagnetic actuator therefor.
310, Electrical Generator or Motor Structure, subclass 77 for electrical generator or motor structure including an electromagnetic system with a braking device.
335, Electricity: Magnetically Operated Switches, Magnets, and Electromagnets, subclass 281 for the particular structure of the core or pole shape or structure or material of the electromagnetic device.

139 The operation of the momentum-brake is initiated or controlled by the action of a weight.

140 Brake applied by the motion of the vehicle to be braked.

141 The brake applied to the vehicle through its momentum is controlled by fluid-pressure-operated means.

142 The brake applied to the vehicle by momentum is controlled through the draft means.

SEE OR SEARCH THIS CLASS, SUBCLASS:
112, for brakes automatically applied (as distinguished from controlled) by draft means.

143 The momentum vehicle-brake is applied to the wheel and ground.

144 A momentum-brake applied to a railway-car.

145 The car-brake is operated through the momentum of the car, by means of a winding-drum.

146 Here the drum is concentric with the wheel-axle.

147 The brakes are operated through the momentum of the cars to be braked, the action being controlled by the relative motion of the units of the train.

148 The braking action is initiated by means of rods on each car, operated when the cars approach each other.

149 The push-rods are the drawbars of the cars.

SEE OR SEARCH THIS CLASS, SUBCLASS:

125+, for brakes automatically applied (as distinguished from controlled) by draft means.

150 The action of the drawbar in initiating the braking action is dependent on the speed of the car.

151 The brake is operated by means of fluid under pressure.

SEE OR SEARCH THIS CLASS, SUBCLASS:

72.4+, for disclosure of a fluid-pressure actuator for a disc-brake assemblage.

SEE OR SEARCH CLASS:

60, Power Plants, subclasses 533+ for a master-slave actuator system where the load connected to the system is broadly recited. The following terms are considered to indicate a merely nominal load and do not preclude classification in Class 60. a. Wheel cylinder b. Brake means c. Brake cylinders d. Hydraulic vehicle brakes e. Disc brakes f. Brakes g. Front and/or rear wheel brakes h. Dual brakes.

92, Expansible Chamber Devices, appropriate subclasses for expansible chamber devices, per se, even though disclosed as means to operate a brake.

303, Fluid-Pressure and Analogous Brake Systems, appropriate subclasses for systems of distribution of fluid to motors of more general application, particularly subclass 84.2 for a safety valve which isolates a failed circuit.

152 Fluid-pressure-operated brakes applied to motor or other road vehicles.

153 Fluid-pressure-operated brakes applied to rail-vehicles.

154 Fluid-pressure-operated brakes in which the operating fluid is obtained from the exhaust of an internal-combustion or other vapor engine.

155 Brakes operated by the impact of a fluid-current.

156 Brakes operated in succession or simultaneously by electric and other than electric means.

SEE OR SEARCH CLASS:

318, Electricity: Motive Power Systems, subclasses 370+ for electric motor braking by plural, diverse or diversely controlled braking means.

157 There is a rotating electric motor mounted on a rotating staff, which is also actuated by hand to operate the brakes.

158 **Electric:**

This subclass is indented under the class definition. Operator in which a device using voltage and current actuates the motion retarder.

SEE OR SEARCH THIS CLASS, SUBCLASS:

171+, for spring applied, electrically released brakes.

266.1, for an internal-resistant motion retarder controlled by condition detected outside of retarder.

267, for a brake or shock absorber using magnetic flux as a motion-resisting force.

282.2+, for a valved orifice in a piston actuated by an electrical system.

SEE OR SEARCH CLASS:

192, Clutches and Power-Stop Control, subclass 21.5, for field responsive frictional media type brakes.

310, Electrical Generator or Motor Structure, subclass 93 for electrodynamic torque brakes.

318, Electricity: Motive Power Systems, subclasses 362+, for electric motor braking systems.

159 The brakes are operated by means of electric current furnished by the motors, acting as generators.

SEE OR SEARCH CLASS:
318, Electricity: Motive Power Systems, subclasses 375+, for electric motor dynamic braking systems.

160 Additional supply of electric current supplements the motor-generated current.

161 The brakes are operated by an electromagnet.

SEE OR SEARCH CLASS:
192, Clutches and Power-Stop Control, subclasses 84.1+ for an electrically actuated clutch.
310, Electrical Generator or Motor Structure, subclass 77 for an electrical generator or motor structure including an electromagnetic braking system.
335, Electricity: Magnetically Operated Switches, Magnets, and Electromagnets, subclass 281 for the particular structure of the core or pole shape or structure or material of the electromagnetic device.

162 The brake is operated by a rotary electric motor.

163 The brake is operated by a solenoid.

164 This subclass is indented under subclass 161. Devices in which the frictionally engaging elements form part of the electromagnetic flux circuit.

165 This subclass is indented under subclass 164. Devices in which one of the frictionally engaging elements is a rail.

SEE OR SEARCH CLASS:
105, Railway Rolling Stock, subclass 78, for this type of device.

166 The brake is operated by a spring.

167 The vehicle-brake is operated by a spring.

168 The brake-setting spring is released by the pull of the draft-rigging on the vehicle.

169 The brake-setting spring is released by the pull of the draft-animals.

170 The spring-applied brake is released by fluid-pressure-operated means.

SEE OR SEARCH THIS CLASS, SUBCLASS:
72.3, for a device with a mechanism (e.g., fluid) to withdraw the component away from the rotating member which device further includes means (e.g., fluid) to press the component toward the rotating member, the component including the characteristics set forth under subclass 71.1.

SEE OR SEARCH CLASS:
92, Expansible Chamber Devices, subclass 63 for biasing means for a working member and subclass 130 for biasing means for a working member held inoperative by fluid pressure.
192, Clutches and Power-Stop Control, subclass 91 for spring applied, fluid pressure released clutches.
303, Fluid-Pressure and Analogous Brake Systems, subclass 71 for a brake motor forced to release position by the pressure of fluid.

171 The spring-operated brake is released by electrically-operated means.

SEE OR SEARCH THIS CLASS, SUBCLASS:
158, for electrical operators for applying the brake.

SEE OR SEARCH CLASS:
192, Clutches and Power-Stop Control, subclass 90 for a spring applied electrically released clutch.
318, Electricity: Motive Power Systems, subclasses 366+, for devices of this type combined with a motor circuit to release the brake when the motor is energized.

173 The spring-operated brake on a vehicle is released by electrically-operated means.

174 The brake is applied by a weight.

175 The operation of the weight is controlled by the draft on the vehicle.

176 The vehicle-body forms the weight that operates the brake.

177 A brake is applied when the vehicle-body is inclined.

178 The body of the vehicle is shifted longitudinally to operate the brake.

179 The brakes are operated by a float.

180 The brake is applied in response to speed condition of the machine. The regulator recovers and assumes its normal condition on decrease of speed.

SEE OR SEARCH CLASS:

73, Measuring and Testing, subclasses 488+ for a speed responsive device, per se.

74, Machine Element or Mechanism, subclasses 336+, for speed-controlled gears.

160, Flexible or Portable Closure, Partition, or Panel, subclasses 291+, for roll devices having means for retarding or stopping the roll, or for holding the roll to prevent undesired rotation.

182, Fire Escape, Ladder, or Scaffold, subclass 75, 234, and 239 for a reel type self-lowering escape with a regulator or brake on reel.

187, Elevator, Industrial Lift Truck, or Stationary Lift for Vehicle, appropriate subclasses, especially subclasses 250+ for a specific elevator load support drive means or its control.

192, Clutches and Power-Stop Control, subclass 147.

475, Planetary Gear Transmission Systems or Components, subclasses 254+, for condition responsive control in planetary gear transmission systems.

181 A brake-speed regulator located on a vehicle.

SEE OR SEARCH CLASS:

303, Fluid-Pressure and Analogous Brake Systems, particularly subclasses 121+ for a speed controlled braking systems, especially subclass 115.6 for a flywheel type.

182 The fluid-pressure and electric operated brakes are controlled in response to the speed of the machine.

184 In response to the speed of the wheel brake-shoes are forced into contact with the inner rim.

185 The action of the shoes is radially outward.

186 The action of the brake-shoe is inward toward the rim of the wheel.

187 A brake is moved parallel to the axis of rotation in response to speed of the wheel.

188 In response to the speed of movement a brake engages a strand or cord.

189 The brake is set in response to speed condition. The brake remains set upon decrease of speed.

190 Devices to compensate the disturbance of the brake-rigging upon movements of the vehicle-body.

191 A rod or bar maintains the brake-shoe at a constant distance from the vehicle-wheel during the rise and fall of the vehicle-body.

192 Devices to compensate the disturbance of the brake-rigging due to the turning of a wheel truck.

193 To compensate the turning of a railway-wheel truck.

SEE OR SEARCH CLASS:

105, Railway Rolling Stock, subclasses 165+, for means for radial compensation.

194 To compensate the brake-rigging upon disarrangement due to the turning of a one-wheel truck.

195 Devices to regulate the force of application of the brakes made necessary by changes in the load on the vehicle.

SEE OR SEARCH CLASS:
303, Fluid-Pressure Brake and Analogous Systems, subclass 9.68 and 22.1+, for systems where the distribution of the fluid is controlled according to the gravity load on the machine.

196 Devices to compensate the wear or stretch of the brake shoes and rigging.

SEE OR SEARCH THIS CLASS, SUBCLASS:
71.7+, for disclosure of a wear-adjusting means in a disc-brake assemblage.
79.51+, for wear take up or compensating structure for a transversely movable brake.

197 Slack-adjusters peculiarly adapted for use on railway-cars.

SEE OR SEARCH CLASS:
246, Railway Switches and Signals, subclass 152, and indented subclasses, for wear or stretch compensators.

198 The slack-adjuster is automatic in action.

199 The adjustment is made by means of frictional rod-clutch.

200 The slack is taken up by means of a ratchet and toothed bar.

201 Plates or shims are used in adjusting the length of members.

202 The wear or stretch is taken up by means of a nut and screw.

203 The screw is operated by fluid-pressure.

204 Devices to equalize the draft on two or more brake members.

205 Hangers or other supports for brake members.

206 Supports for braking elements.

207 Supports for the shoe-carrying beams on vehicles.

208 Supports for brake-beams adapted to the road-vehicle type of beam and brake-shoe.

209 The portion of the vehicle from which the beam is suspended or upon which it is supported.

210 An additional support, normally idle, adapted to receive the brake element upon failure of the active support.

211 The support is engaged in the brake-head or in the bracket-support in a manner to prevent accidental displacement.

212 The supports are designed to preserve the parallelism of the face of the brake-shoe and the face of the wheel.

213 The parallelism of the shoe-face to the wheel-face is secured by supporting the beam at more than two points.

214 There are means to compensate wear in the support to prevent chattering and for other purposes.

215 The position of the support is affected by wear in the brake-shoe to secure a readjustment.

216 Mechanism to secure the release of the brakes when the applying force is removed.

217 A spring or other cushion placed between the brake-applying power and the brake to distribute or partially dissipate the thrust on the braking element.

218 The disks or drums attached to or revolving with the wheel and to which the brake is applied.

(1) Note. This subclass includes heat shields, dust guards and vibration dampeners for compensating for thermal expansion of the brake wheel drum or disc. Also, this subclass includes vibration dampeners for the noted elements in general.

SEE OR SEARCH THIS CLASS, SUBCLASS:

250, for vibration dampeners for brake shoes, per se.

SEE OR SEARCH CLASS:

74, Machine Element or Mechanism, subclass 574 for vibration dampeners for flywheels and rotors.

192, Clutches and Power-Stop Control, subclass 30 for vibration dampener for a clutch and subclasses 70.17+ and 200+ for a vibration dampener for clutch elements.

295, Railway Wheels and Axles, subclass 33.

301, Land Vehicles: Wheels and Axles, for a wheel having a surface to be engaged by a brake, particularly subclasses 6.1+ for a wheel with a brake or drive attachment.

492, Roll or Roller, for a roll, per se, not elsewhere provided for, and see the notes thereunder.

219.1 This subclass is indented under the class definition. Devices which carry the brake shoes and heads, and through which the thrust is transmitted to the shoes, either claimed, per se, or in combination with heads, shoes, fulcrums, guides and/or guards.

219.6 This subclass is indented under subclass 219.1. Devices wherein the beam has structure for mounting the brake heads movably, reversibly and/or adjustably.

(1) Note. Beams peculiarly constructed to pivot a brake head are here, even though the head is not claimed.

220.1 This subclass is indented under subclass 219.6. Devices wherein the head is pivoted upon the beam.

220.6 This subclass is indented under subclass 220.1. Devices in which means is provided for fastening the head in an angularly adjusted position.

221.1 This subclass is indented under subclass 220.6. Devices in which the fastening means yieldingly holds the head with respect to the beam, and allows for automatic readjustment of the position of the head when the brakes are applied.

(1) Note. Devices which provide for automatic readjustment of the head combined with means for manually locking the head in the readjusted position are found in this subclass.

222.1 This subclass is indented under subclass 219.1. Devices wherein the brake head or head thrust block is fixed with respect to the beam.

222.6 This subclass is indented under subclass 222.1. Devices in which the head and beam are made by shaping a single piece of material.

SEE OR SEARCH THIS CLASS, SUBCLASS:

226.1, for trussed beams in which the tension and compression members are integral.

223.1 This subclass is indented under subclass 222.1. Devices wherein the beam is a trussed beam.

SEE OR SEARCH THIS CLASS, SUBCLASS:

225.6+, for the specific structure of trussed beams.

223.6 This subclass is indented under subclass 223.1. Devices in which the heads or blocks are held in place on the compression member of the beam by means of the tension element of the beam.

224.1 This subclass is indented under subclass 223.6. Devices wherein the end of the tension member extending through the head or block is threaded to receive a nut, the adjustment of which changes the tension in the member.

225.6 This subclass is indented under subclass 219.1. Devices having separate compression and tension members.

SEE OR SEARCH THIS CLASS, SUBCLASS:

223.1+, for trussed beams combined with rigidly mounted brake heads.

226.1 Devices under 225.6 wherein the tension and compression members are made by shaping a single piece of material.

SEE OR SEARCH THIS CLASS, SUBCLASS:
222.6, for integral beams and brake heads.

228.1 This subclass is indented under subclass 225.6. Devices wherein the compression member of the beam is of hollow form.

228.6 This subclass is indented under subclass 225.6. Devices wherein the compression member is of H, I, L, T, U, V, or X cross-section.

(1) Note. These compression members are usually made from modified rolled sections.

SEE OR SEARCH THIS CLASS, SUBCLASS:
223.7, for nontrussed beams having any of these same cross-sections.

229.1 This subclass is indented under subclass 225.6. Devices wherein a strut between the tension and compression members also constitute a bearing or pivot for a brake lever which applies force to the beam.

SEE OR SEARCH THIS CLASS, SUBCLASS:
228.1, and 228.6, for strut type fulcrums used with the particular type of trussed beams there classified. (Disclosures from these two subclasses are not cross-referenced into this subclass).

229.6 This subclass is indented under subclass 229.1. Devices wherein the fulcrum is capable of being positioned in either of two positions approximately ninety degrees apart, to enable the brake lever to be canted to the right or to the left.

SEE OR SEARCH THIS CLASS, SUBCLASS:
231, for reversible fulcrums mounted on nontrussed beams.

231 This subclass is indented under subclass 219.1. Devices having a bearing or pivot for a brake-lever which applies force to the beam.

SEE OR SEARCH THIS CLASS, SUBCLASS:
229.1, for fulcrums which also constitute the strut for trussed beams.

232 This subclass is indented under subclass 231. Devices wherein the fulcrum is capable of being positioned in either of two positions approximately ninety degrees apart, to enable the brake lever to be canted to the right or to the left.

SEE OR SEARCH THIS CLASS, SUBCLASS:
229.6, for reversible fulcrums which serve as struts for trussed beams.

233 This subclass is indented under subclass 231. Devices wherein there are a plurality of spaced fulcrums on the beams, usually near the ends.

(1) Note. This form of beam is adaptable for clasp-brakes and others where it is desirable to leave a free central space.

233.3 This subclass is indented under subclass 219.1. Devices with means to cooperate with other parts of the brake or vehicle structure to confine the movement of the beam and/or the brake head in its normal movement.

SEE OR SEARCH THIS CLASS, SUBCLASS:
207, for supports combined with beams and/or beam assemblies.

233.7 This subclass is indented under subclass 219.1. Beam structures wherein the beam is of H, I, L, T, U, V or X cross-section.

(1) Note. These beams are usually made from modified rolled sections.

SEE OR SEARCH THIS CLASS, SUBCLASS:
228.6, for trussed beams having a compression member of any of the same cross-sections.

234 Includes patents for methods or devices for fastening wearing-shoes to the holder.

(1) Note. In the railway type of brake the shoe is attached to a holder called the "head", and this is attached to the beam. In the wagon type of brakes, where the wearing-shoe is attached directly to the brake-beam, the patents will be found in this class, subclass 220 or 221 above.

235 A shoe-fastener adapted to locomotive and other heavy shoes.

236 Brake-heads or shoe-holders in which the invention is directed to the part of the head modified by or which modifies the wearing-shoe.

237 A wheel-guard or device to retain the shoe in proper relation to the wheel is combined with the shoe-fastening.

238 Two or more shoes are combined in the same structure.

239 The shoes are placed one over another, so that the back shoe is a holder to the one at the face.

240 The shoes are arranged in line in relation to face of wheel.

241 The shoes are in linear arrangement, connected by parts that may be fractured on undue strain.

242 The heads and shoes have projecting interfitting parts.

243 The fastening-key is inserted longitudinally of the shoe.

SEE OR SEARCH CLASS:
411, Expanded, Threaded, Driven, Headed, Tool-Deformed, or Lock-Threaded Fastener, subclasses 357+ for longitudinally inserted penetrating pin securing means.

244 The shoe and head lugs can be brought together only longitudinally.

245 The shoe and head lugs can be brought together only from the side.

246 The shoe is held in a clamp with movable jaws.

247 Lugs on the back of the shoe to attach to the head.

SEE OR SEARCH THIS CLASS, SUBCLASS:
255, and 258.

248 The back-lug is cast into the back of the shoe.

SEE OR SEARCH THIS CLASS, SUBCLASS:
255, and 258.

249 Devices for attaching flexible shoes to ears or heads.

250 The elements that come in contact with the body to be retarded.

(1) Note. Where the shoe or element is claimed with no significant shoe or element structure but merely in terms of the composition or material of which it is composed, it will be classified in the appropriate composition or material class, even though there is no claim to the composition, per se. In this connection, the following classes should be considered:

SEE OR SEARCH CLASS:
75, Specialized Metallurgical Processes, Compositions for Use Therein, Consolidated Metal Powder Compositions, and Loose Metal Particulate Mixtures, for articles defined solely by their metal or alloy composition.
106, Compositions: Coating or Plastic. Note particularly the class definition of Class 106 for the classification of other compositions.
148, Metal Treatment, particularly subclasses 31+ for materials which are products of processes of treating metal classifiable in Class 148, or for products distinguished only by the internal structure or characteristics of the metals, metallic compositions or alloys comprising such products.

156, Adhesive Bonding and Miscellaneous Chemical Manufacture, appropriate subclass, for methods of making laminated structures.

192, Clutches and Power-Stop Control, subclasses 107+ for the structure of a clutch component, per se.

252, Compositions, for compositions not elsewhere classified.

260, Chemistry of Carbon Compounds, subclasses 709+ for a composition containing rubber.

428, Stock Material or Miscellaneous Articles, appropriate subclasses, for a stock material product in the form of a single or plural layer web or sheet not elsewhere provided for, and especially subclasses 64.1+ for a circular sheet; subclasses 196+ and 225+ for such a product embodying mechanically interengaged strands (e.g., weave, knit); subclasses 364+ for a rod, strand, fiber or filament with structure (e.g., nonlinear) or coated; and subclasses 544+ for a web or sheet which is all metal or has adjacent metal components. See also (2) Note below.

520, Synthetic Resins or Natural Rubbers, appropriate subclasses, particularly Class 523, subclass 152 for a composition containing a synthetic resin having utility as a friction element for automobiles, trains, trailers, roller skates, skateboards, or other wheeled vehicles or to processes of preparing said composition.

(2) Note. A patent directed to a product with a frictional property, where said property is enhanced by claimed structure (external structure (e.g., disc surface configuration)) or internal structure (e.g., discrete zones of friction material; particular arrangement of strands, fibers or layers), will be placed in this class (188) rather than in Class 428, Stock Material or Miscellaneous Articles, where the sole use disclosure is as a brake.

251 Shoes that are a combination of two or more elements.

251 Shoes that are a combination of two or more elements.

SEE OR SEARCH CLASS:

106, Compositions: Coating or Plastic, subclass 36, for friction surface compositions.

428, Stock Material or Miscellaneous Articles, subclass 564 for a metallic composite in which at least one component is made up of a mixture of metal and nonmetal particles.

252 Composite shoes having a member extending over the flange of the wheel.

253 Composite flanged shoes having recesses for ventilation or other purposes.

SEE OR SEARCH THIS CLASS, SUBCLASS:

261, for examples of other recessed shoes.

254 A composite shoe constructed of a shell filled with some plastic material not molten metal.

255 A composite shoe formed of a body of cast metal, in which is embedded other material.

SEE OR SEARCH THIS CLASS, SUBCLASS:

257, and 258.

256 A composite shoe of a body of cast metal, in which are placed inserts of nonmetallic material.

257 Into the metal body of the shoe and near the wearing-face are cast metallic inserts to modify the frictional and abrasive action of the shoe.

SEE OR SEARCH THIS CLASS, SUBCLASS:

255,

258 Into the metal body of the shoe and near the back are cast metallic inserts to prevent the shoe falling apart when broken.

SEE OR SEARCH THIS CLASS, SUBCLASS:

255,

259 Flexible brake-shoes suitable for band-brakes.

260 Portions of the face of the shoe are chilled when casting.

261 The shoes contain recesses or cavities for purposes of ventilation and for other purposes.

262 The shoe is formed of a roller or has a roller on its face.

264 Devices for cooling or lubricating brake-shoes or brake wheels or drums.

(1) Note. This subclass takes such wheel structure as may be necessary to the functioning and/or support of devices which, by disclosure, are intended to facilitate the removal of brake-generated heat from a braked wheel or to prevent transmission of such heat from a brake part or parts to other portions of the wheel. This is so, regardless of whether any brake structure is claimed. For example, patents drawn to ventilating wheel covers for the above stated purpose, or to the combination of such covers with their respective wheels, are classified here.

SEE OR SEARCH THIS CLASS, SUBCLASS:

71.6, for disclosure of a disc-brake assemblage having cooling means therefor.

218, for brake wheels or rotors, per se, including wheel cooling structure.

SEE OR SEARCH CLASS:

105, Railway Rolling Stock, subclass 59, for devices for cooling motors.

192, Clutches and Power-Stop Control, subclass 70.12 for means to cool or lubricate a clutch part of the axially engaging type and subclasses 113.1+ for lubricating a cooling a clutch part.

301, Land Vehicles: Wheels and Axles, subclasses 6.1+, for wheel brake-heat dissipators or insulators combined with wheel parts not necessary to the functioning and/or support of the dissipator.

265 Devices for holding the brakes in a set position.

SEE OR SEARCH CLASS:

192, Clutches and Power-Stop Control, subclasses 114+ for locks for holding the clutch in a set position.

266 INTERNAL RESISTANCE MOTION RETARDER:

This subclass is indented under the class definition. Device including a first member attached to a moving mechanism, wherein there is relative motion between the first member and either a medium or a second member, and wherein at least one component of the relative motion is restrained or dissipated by a reluctance to be disturbed that exists within the medium or the second member.

(1) Note. The term “reluctance to be disturbed” is used to describe the internal resistance of a medium to movement of an object therethrough, such as (a) a liquid (which has viscosity), (b) a magnetic field (which has flux lines of force), (c) a gas (which has density, though less than that of liquid), and (d) granular material (which is fluent under certain conditions). Said term also describes the internal resistance of an object (i.e., the “second member” of the definition) to elastic deformation, such as a spring or body of rubber (which yieldingly resists deformation). The named mediums and objects are only examples of those that can be found within devices in this and indented subclasses. In each of these devices, internal resistance is the characteristic that retards motion.

(2) Note. The movement of the first member is not restricted to motion in only one direction, but may include return motion in the opposite direction. However, when the movement of the member is returned, both the energy of the original motion and that of the returned motion are absorbed by the retarder. In neither direction of motion is absorbed energy returned by the device to cause return movement.

SEE OR SEARCH CLASS:

182, Fire Escape, Ladder, or Scaffold, subclass 233 for fluid resistance brakes for fire escapes, ladders and scaffolds.

192, Clutches and Power-Stop Control, subclasses 215+ for internal resistance brake with a transmission control.

267, Spring Devices, appropriate subclasses for a device by which energy absorbed during movement of a member in one direction is returned to restore the member to its original position.

293, Vehicle Fenders, subclass 134 for bumpers having fluid shock absorber means to absorb an impact force on the bumper.

266.1 Motion damped from condition (e.g., bump, speed change) detected outside of retarder:
This subclass is indented under subclass 266. Internal resistance motion retarder in which a movement, external to the retarder (e.g., by the wheel) causes a response by the member or medium.

SEE OR SEARCH CLASS:

280, Land Vehicles, subclasses 5.5+ for a general utility land vehicle including an active suspension responsive to a force encountered while the vehicle is in surface traversing motion which may or may not involve an internal-resistance motion retarder; subclasses 6.15+ for a general utility land vehicle including means, interposed between the vehicle body, chassis, or frame and running gear thereof, for altering height or levelness of the vehicle body, chassis, or frame which may or may not involve an internal-resistance motion retarder; or subclasses 124.1+ for a general utility wheeled land vehicle running gear suspension arrangement which may or may not involve an internal-resistance motion retarder. See the (2) Note appearing within this class (Class 188), subclass 272.

266.2 Condition actuates valve or regulator:
This subclass is indented under subclass 266.1. External condition detection in which a flow controlling device damps the motion.

266.3 Of the rotary type:
This subclass is indented under subclass 266.2. Valve which turns about an axis to align an opening to control flow.

266.4 Having plural openings:
This subclass is indented under subclass 266.3. Rotary valve in which an element of the flow controlling device has more than one aperture.

266.5 Of the pulsating or reciprocating type:
This subclass is indented under subclass 266.2. Valve which oscillates along an axis to align an opening to control flow.

266.6 Side mounted:
This subclass is indented under subclass 266.5. Pulsating or reciprocating valve in which the flow control device is located perpendicular to the retarder axis.

266.7 Piezoelectric:
This subclass is indented under subclass 266. Internal resistance motion retarder in which a material that converts alternating current into mechanical vibrations is used.

266.8 With failure or malfunction detection:
This subclass is indented under subclass 266. Internal resistance motion retarder in which a flaw in the member, medium, or system is recognized.

267 Using magnetic flux:
This subclass is indented under subclass 266. Internal resistance motion retarder wherein a medium comprises a dipolar field of force in which the density is related to the intensity.

SEE OR SEARCH CLASS:

192, Clutches and Power-Stop Control, subclasses 84.1+ for electric or magnetic operators.

267, Spring Devices, subclasses 140.14+ for a spring device with energy absorbing means including fluid and magnet flux dampening.

310, Electrical Generator or Motor Structure, subclass 92 for electrical generator or motor structure including a magnetic flux brake.

318, Electricity: Motive Power Systems, subclasses 362+ for a brake on an electric motor, wherein the brake uses magnetic flux to retard rotation.

267.1 Electroviscous or electrorheological fluid: This subclass is indented under subclass 266. Internal resistance motion retarder wherein the liquid or gas changes viscosity upon application of electricity.

SEE OR SEARCH CLASS:

267, Spring Devices, subclass 140.14 and 140.15 for energy absorbing means with electronic or magnetic control which includes electroviscous or electrorheological fluid.

267.2 Magnetic fluid or material (e.g., powder): This subclass is indented under subclass 266. Internal resistance motion retarder wherein a dipolar liquid or gas composition changes viscosity upon application of energy.

268 This subclass is indented under subclass 266. Device wherein the first member imparts its motion to a resilient second member or to a flowable, granular mass of particles.

(1) Note. The use of a spring to bias a valve is common in the devices of subclasses 266+, but such spring means is not classified here. This subclass (268) is for a device wherein the energy of motion is absorbed by a spring or block of rubber, for example.

SEE OR SEARCH CLASS:

267, Spring Devices, appropriate subclasses, for a device wherein a spring absorbs and returns energy of motion from and to the device.

269 This subclass is indented under subclass 266. Device wherein the medium comprises a gas and a liquid, or comprises liquids of different viscosities.

(1) Note. Included in this subclass (269) are some devices wherein a mixture of air and liquid tends to "froth" during operation, but special valve or ducting structure is provided to prevent such frothing.

270 This subclass is indented under subclass 266. Device wherein the medium comprises air that surrounds the mechanism and flows relative thereto, and wherein the first member extends into or causes the flow of air.

(1) Note. Included herein is a vehicle having vanes extensible into the flow of air through which the vehicle is travelling, and a motor driving a fan-blade that causes air to be moved whereby motor speed is governed.

271 This subclass is indented under subclass 266. Device having an internal-resistance motion-retarder placed in an appropriate subclass of 266+ and also relying for its motion-retarding effect upon the friction characteristics of two adjacent surfaces, which second motion-retarding effect is characteristic of devices placed in other subclasses of Class 188.

(1) Note. This subclass includes (a) a device wherein a brake of subclass 290 or its indented subclasses is combined with a friction brake of other subclasses of Class 188, and (b) a device wherein a shock absorber of subclass 297 or its indented subclasses is particularly disclosed as having its retarding effect increased by friction (e.g., the cylindrical surface of a piston is radially urged against the cylinder in which the piston slides).

SEE OR SEARCH CLASS:

192, Clutches and Power-Stop Control, subclass 57, for a surface-friction clutch combined with an internal-resistance clutch.

272 This subclass is indented under subclass 266. Internal-resistance brake combined with the moving mechanism that causes the motion which is to be restrained by the brake; the combination being not otherwise provided for.

(1) Note. The devices in this and indented subclasses are those wherein the mechanism is not significant (therefore the

device is not proper for the class wherein other such mechanisms are found) and wherein the proper class for such mechanism, per se, does not provide for the combination of mechanism and motion-retarder therefor. See the Search Class Notes below for a partial listing of classes providing for such combination.

(2) Note. It is customary for a motor vehicle to have included therein a shock absorber of an appropriate subclass of 266+. Therefore the "combination" of a vehicle and shock absorber will be found in the subclass pertaining to the shock absorber, per se, unless significant vehicle structure warrants classification of the device in an appropriate vehicle class.

SEE OR SEARCH CLASS:

4, Baths, Closets, Sinks, and Spittoons, subclass 248, for buffer and dashpot structure.

16, Miscellaneous Hardware, subclass 84, for a pneumatic closure check.

73, Measuring and Testing, subclasses 862.09+, for a torque absorbing dynamometer using fluid, and subclass 430, for an instrument mechanism damping device.

104, Railways, subclass 256, for a fluid-pressure car-stopping bumper.

105, Railway Rolling Stock, subclass 193, for a bogie bolster damper.

123, Internal-Combustion Engines, subclass 323, for a significant charge-proportion-varying internal combustion engine having braking means therefor including exhaust restricting means.

137, Fluid Handling, subclasses 514+, for a valve having a dashpot thereon to retard its actuation.

177, Weighing Scales, subclasses 184+, for a weighing scale having a shock absorber or damper.

187, Elevator, Industrial Lift Truck, or Stationary Lift for Vehicle, subclass 344 and subclasses 345+, for an elevator having a fluid governor.

200, Electricity: Circuit Makers and Breakers, subclass 34, for a dashpot in a circuit maker.

244, Aeronautics, subclasses 110+, for aircraft arresting gear including fluid resistance means.

251, Valves and Valve Actuation, subclasses 48+, for a valve retarded by a dashpot.

254, Implements or Apparatus for Applying Pushing or Pulling Force, subclass 377, for a cable drum retarded by a fluid resistance brake.

280, Land Vehicles, subclass 89.11 for a general utility wheeled land vehicle including occupant controlled steering of laterally opposed, stub axle supported, steerable road wheels provided with means for returning the steerable road wheels to a center or neutral angulation which may or may not be fluid operated; subclass 89.13 for a fluid positioning device employed in conjunction with the tie rod interconnecting laterally opposed steerable stub axles not returning the steerable road wheels to a center or neutral angulation; or subclass 90 for a general utility wheeled land vehicle including occupant controlled steering having fluid positioning devices not limited to laterally opposed stub axle supported steerable road wheels.

297, Chairs and Seats, subclasses 470+, for a body restrainer having an energy-absorbing device.

314, Electric Lamp and Discharge Devices: Consumable Electrodes, subclasses 99+, for a movable electrode having a dashpot for retarding motion thereof.

335, Electricity: Magnetically Operated Switches, Magnets, and Electromagnets, subclass 29, 61 and 240, for a switch having a dashpot.

475, Planetary Gear Transmission Systems or Components, subclasses 31+, for planetary gearing associated with a fluid brake.

273 This subclass is indented under subclass 272. Device wherein the mechanism is an engine emitting waste products and includes a member that may be positioned to restrict the emission of such products, whereby the operation of said engine is restrained as a result of such restriction.

(1) Note. The engine may be an internal-combustion engine emitting exhaust products or a steam engine or turbine emitting waste steam, but in either case the restriction on emission is the proximate cause of engine retardation.

SEE OR SEARCH CLASS:
123, Internal-Combustion Engines, subclass 323, for an internal-combustion engine having a relationship of resistance braking and charge-proportion varying.

274 This subclass is indented under subclass 266. Device provided with means to change the temperature of the medium or any part of the device.

(1) Note. It is inherent in the operation of an internal resistance brake that heat will be generated as a member is moved in a medium. The device of this subclass has significant means to cool the medium.

SEE OR SEARCH CLASS:
165, Heat Exchange, for a heat exchanger, per se.

275 This subclass is indented under subclass 266. Device wherein the first member causes flow of a fluid medium through a passage for said fluid, said passage having an element that is movable to close or modify the size of the passage, thereby variably restricting flow of fluid through said passage, said element being sluggish in its movement by reason of a reluctance to be disturbed that exists in the element or a weight connected thereto; whereby motion of said member is restrained not only by reluctance to be disturbed that exists in the fluid itself, but also restrained by restriction to fluid flow caused by reluctance to be disturbed that exists in the element.

(1) Note. Examples of devices found in this subclass include: a shock absorber wherein amplitude or frequency of movement to be retarded causes operation of a valve in the shock absorber by reason of inertia in the valve, and a shock absorber on a vehicle wherein change in direction of the vehicle causes an inertia valve on the shock absorber to change the retarding effort of the shock absorber.

276 This subclass is indented under subclass 266. Device wherein motion of a member relative to a fluid medium causes variation in degree of heat or fluidity of the fluid (and thus tends to alter restraining characteristics of the device), provided with means for counteracting effects of such variation, thereby preserving restraining characteristics of the device.

277 This subclass is indented under subclass 276. Device wherein said fluid flows through a passage having an element modifying the size of the passage, which element is affected by variation in degree of heat of the fluid thereby to counteract effects of such variation.

SEE OR SEARCH CLASS:
236, Automatic Temperature and Humidity Regulation, subclass 93, for a thermostatic valve, per se, located in the fluid controlled by the valve.

278 This subclass is indented under subclass 277. Device wherein modification in size of the passage by said element is further regulated by manipulation of the element by a person using the device.

SEE OR SEARCH THIS CLASS, SUBCLASS:
309, and 310, for an oscillating or reciprocating shock absorber having a manually adjustable valve.

280 This subclass is indented under subclass 266. Device wherein restraining effort is responsive to the velocity of the thrust member or of the flowing medium with respect to the device.

(1) Note. The term “thrust member” is defined and explained in the definition and (1) Note of subclass 297.

(2) Note. In this subclass a shock absorber retards a normal movement with a normal force, but retards a faster movement with a greater force.

281 Resistance alters relative to direction of a thrust member (e.g., high resistance in one direction, low in the other):
This subclass is indented under subclass 266. Internal-resistance motion retarder wherein the restraining effort is responsive to the path of movement of a piston (first member), within a fluid, with respect to a chamber or cylinder.

(1) Note. In this subclass, a shock absorber retards movement of a mechanism in one direction with a normal force, but retards movement in an opposite direction with a greater or lesser force.

282.1 Via valved orifice in thrust member:
This subclass is indented under subclass 281. Resistance altered depending on piston direction wherein the member is provided with an opening for the passage of gas or liquid through the opening, and the opening is provided with an element for regulating the opening.

(1) Note. Included in this subclass are pistons in which usually two orifices are provided in the piston or thrust member; one of which orifices has a one-way valve that permits flow of fluid in one direction and restricts flow of fluid in the opposite direction.

SEE OR SEARCH THIS CLASS, SUBCLASS:
317+, for a variable volume chamber in which fluid flows through an orifice in a piston.
322.15, for the particular structure of the piston member.

282.2 Valve actuated by electrical system:
This subclass is indented under subclass 282.1. Valved piston in which the size varying element is moved by an applied voltage and current.

282.3 System initiated by a pressure change or feedback:
This subclass is indented under subclass 282.2. Electrically actuated valve in which the voltage and current are applied in response to a fluid force.

282.4 System having distinct selections (e.g., hard, medium, soft):
This subclass is indented under subclass 282.2. Electrically actuated valve in which the voltage and current moves the element based on a particular choice that determines the degree of damping.

(1) Note. Included in this subclass are selections based on the type of driving anticipated (fast versus slow) and road conditions (rough versus smooth).

282.5 Flexible flap-type valve (e.g., compression washers):
This subclass is indented under subclass 282.1. Valved piston in which the size varying element is a bendable platelike member.

282.6 Having flow passage, cutout, aperture, slot, etc.:
This subclass is indented under subclass 282.5. Flexible flap valve in which the platelike member has an opening.

282.7 Ball-type valve:
This subclass is indented under subclass 282.1. Valved piston in which the size varying element is a sphere, usually solid.

282.8 Spring-loaded valve:
This subclass is indented under subclass 282.1. Valved piston in which the size varying element is a generally coiled metal wire having a resiliency.

282.9 Adjusting the tension via (a) compressing or expanding or (b) different strength springs:
This subclass is indented under subclass 282.8. Spring-loaded, valved piston in which the coiled wire resiliency (a) can be varied or (b) comprises two different sizes.

283 Piston having a restrictable opening (e.g., apertured plate) in a fixed volume chamber:
This subclass is indented under subclass 266. Internal resistance motion retarder wherein restraining effort varies in accordance with the relationship between a passage for fluid medium and an element modifying the size of the passage within a cylinder having a predetermined size.

SEE OR SEARCH THIS CLASS, SUBCLASS:

319.2, for varying orifice size using a hand or hand tool in a variable volume chamber.

SEE OR SEARCH CLASS:

267, Spring Devices, subclasses 140.11+ for a resilient shock absorber including energy absorbing means having an orifice plate.

283.1 Vortex flow passages:

This subclass is indented under subclass 283. Piston restrictable opening in which the element is designed to create an outward rotating effect to damp.

284 This subclass is indented under subclass 266. Device wherein restraining effort varies in accordance with the location of a thrust member with respect to the variable-volume chamber in which the member moves.

(1) Note. The terms “thrust member” and “variable-volume chamber” are defined and explained in the definition and Notes of subclass 297.

(2) Note. This and indented subclasses provide for a so-called “two-stage” shock absorber in which movement of a mechanism is retarded to one degree during a portion of such movement, and is retarded to a greater or lesser degree during another portion of such movement.

285 Having a fluid flow passage adjusted manually e.g., threaded plug, threaded rod, gearing:

This subclass is indented under subclass 284. Piston movement varies resistance in which the degree to which the restraining effort varies is controlled by a hand or hand tool moving a short slender dowel with a projecting helical rib, a toothed plate, etc.

(1) Note. In this subclass, passage of fluid is permitted in an amount regulated by, and responsive to, the position of a piston relative to the cylinder in which it moves, and a valve is regulated by a user of the device to additionally permit or restrict the amount of fluid passed.

(2) Note. Included in this subclass are needle valves.

286 This subclass is indented under subclass 284. Device wherein said chamber is formed by a thrust member and an enclosure which together contain a fluid, said enclosure has at least one opening therein for the passage of fluid therefrom, and said thrust member moves past said opening to permit or prevent passage of fluid through the opening.

(1) Note. In this subclass, there is usually an orifice in the piston for flow of a portion of fluid and another orifice in the chamber wall for flow of another portion of fluid. When the piston covers the wall orifice, fluid flows only through the piston orifice and is accordingly restricted to a lesser flow, thus exerting a greater resistance to movement of the piston.

(2) Note. In several devices of this and the indented subclasses the chamber wall that has the orifice(s) comprises a perforated tube (e.g., a piston rod) within a cylinder; thus the wall referred to is an interior wall.

287 This subclass is indented under subclass 286. Device provided with more than one of said openings, wherein said thrust member moves past said openings in sequence.

(1) Note. In this subclass flow of fluid is gradually restricted to a greater degree as the piston passes and closes the orifices successively.

288 This subclass is indented under subclass 284. Device wherein a thrust member moves within a variable-volume chamber through a corridor that surrounds the thrust member in a plane perpendicular to its direction of movement, and wherein the size of the corridor in that plane changes along the direction of movement of the thrust member.

(1) Note. In this subclass fluid moved by the piston flows between the periphery of the piston and the interior wall of the

chamber. The area of interior wall provided for such fluid flow varies by reason of grooves in, or taper of, the wall, thus the degree of fluid flow is dependent upon the position of the piston along the wall.

SEE OR SEARCH THIS CLASS, SUBCLASS:

316, for a shock absorber in which fluid flows between the periphery of a piston and the interior wall of a chamber.

289 This subclass is indented under subclass 284. Device wherein a thrust member has an opening therein for passage of fluid therethrough, which opening is closed to a greater or lesser degree by an elongated bar, the length dimension of which bar reaches through said opening and the size of which bar; in dimension perpendicular to its length dimension, changes along the length of the bar.

(1) Note. In this subclass fluid moved by the piston flows through an orifice in the piston, the area of which orifice varies by reason of taper, or a groove, in the rod that extends through the orifice; thus the degree of fluid flow is dependent upon the position of the piston relative to the rod.

SEE OR SEARCH THIS CLASS, SUBCLASS:

317+, for a shock absorber in which fluid flows through an orifice in a piston.

SEE OR SEARCH CLASS:

267, Spring Devices, subclass 8 for metering pins in a mechanical spring and retarder arrangement and subclass 64.22 for a fluid spring and retarder with a metering pin for varying the spring rate.

290 This subclass is indented under subclass 266. Device wherein said moving mechanism turns about an axis in only one direction of turning and is connected to said first member, whereby turning of the moving mechanism is restrained by relative motion between the first member and a fluid medium.

(1) Note. In this and indented subclasses the load member or mechanism is usually a wheel or axle on a vehicle, but may be a pulley, drum, shaft or any one-way rotating mechanism, the rotation of which is to be retarded. The load member usually causes rotation of vanes or blades within a fluid, or rotation of said load member is mechanically converted into reciprocation of a vane or a piston within a cylinder or into rotation plus oscillation of vanes within a housing for fluid, but in all such cases, flow of fluid is effected and such flow is restricted to retard rotation of the load member.

(2) Note. The definition and note does not bar placement of a patent disclosing rotation in either or both of two directions (e.g., clockwise and/or counterclockwise). However, it should be clear that the action of the brake when the member rotates in either direction is the same as if the member were rotating in one direction only.

SEE OR SEARCH CLASS:

192, Clutches and Power-Stop Control, subclasses 58.1+ for a internal resistance motion retarder for a clutch with unidirectionally rotating load member.

291 This subclass is indented under subclass 290. Device provided with a clutch that connects and disconnects said moving mechanism and said first member.

(1) Note. The “clutch” referred to above is one that by itself would be found in Class 192, Clutches and Power-Stop Control, thus needs no further definition. In this subclass, however, the clutch is used solely to connect a wheel, or equivalent rotating load whose rotation is to be retarded, to a device of this class (188), and this subclass (290+), used to retard such rotation, so that user may control operation or nonoperation of a retarder.

SEE OR SEARCH THIS CLASS, SUBCLASS:

71.2, for disclosure of a disc-brake assemblage connected to a wheel or rotating load by a clutch mechanism.

SEE OR SEARCH CLASS:

192, Clutches and Power-Stop Control, appropriate subclasses, for a clutch, per se, and subclasses 12+, for a clutch and a brake that are applied alternatively to drive or to retard a mechanism.

292 This subclass is indented under subclass 290. Device wherein said moving mechanism is connected to a gear-like element having teeth on the circumference thereof, said first member is connected to another gear-like element having similar teeth, and the teeth of both elements mesh with each other, whereby as one element turns in one direction the other turns concurrently in an opposite direction.

(1) Note. In many devices of this subclass the elements described above form a "gear pump" in which fluid is caused to flow by reason of the teeth acting as vanes to cause such flow. In other devices the teeth are helicoidal and act as screws to cause relative motion or flow of the fluid. In both exemplary instances flow is restricted to retard motion of the load.

293 This subclass is indented under subclass 290. Device wherein a connection between said first member and said mechanism converts turning of the mechanism about its axis into reciprocation of the member perpendicular to said axis; said reciprocation resulting in circulation of fluid medium in which the member reciprocates.

(1) Note. The reciprocation is usually effected by a crank, cam or shaft revolving eccentrically of the axis of the mechanism, to which eccentric a vane or piston is connected.

(2) Note. In this subclass, the brake usually includes a drum rotated by a wheel, which drum carries vanes extending radially from the axis and parallel thereto. The drum and its vanes rotate within a fluid-filled housing having an inner periphery eccentric to the axis. The revolving vanes, radially urged against the housing, effect circulation of fluid.

294 This subclass is indented under subclass 293. Device provided with means for changing the extent of reciprocation of said member.

(1) Note. The change referred to is usually accomplished by varying the eccentricity described in (1) Note to subclass 293, although other regulating means are also found in this subclass. For example, in a device wherein piston reciprocation is caused by rotation of an inclined "wobble plate", the extent of reciprocation can be changed by changing the inclination of the plate, or in a device wherein relative reciprocation of a piston in a cylinder causes fluid flow, such flow can be changed by changing the position of the cylinder.

295 This subclass is indented under subclass 293. Device wherein said first member is a thrust member moving to-and-fro in a straight line within a chamber.

(1) Note. The terms "thrust member" and "chamber" are defined and explained in the definition and Notes of subclass 297.

SEE OR SEARCH THIS CLASS, SUBCLASS:

297+, for a shock absorber having a piston reciprocating rectilinearly in a chamber.

296 This subclass is indented under subclass 290. Device wherein said mechanism turns a shaft having radially extending blades connected to and partly enclosed by a concave shroud, which device has a second concave shroud having radially extending blades therein but not turning; the shrouds being arranged to face one another to enclose a body of fluid which is caused to be moved by the turning blades and retarded by the nonturning blades.

(1) Note. The brake herein defined is structurally similar to a device described as a "vortex-flow drive" in (1) Note to Class 192, subclass 3.21. In both instances fluid circulates in the shape of a torus (i.e., the solid formed by a circle revolving about an axis lying in its plane). However, in Class 192 the device transmits torque from a first, rotating shaft to a second rotatable shaft, whereas in this subclass (296), the second shaft does not rotate, thereby retarding rotation of the first shaft.

SEE OR SEARCH CLASS:
192, Clutches and Power-Stop Control, subclasses 3.21+, and see (1) Note above.

297 Having a thrust member and variable volume chamber (e.g., coaxial or telescopic tubes, compensating reservoir):
This subclass is indented under subclass 266. Internal resistance motion retarder wherein said first member is moved by a mechanism relative to or within a container for fluid medium; the member together with the container enclosing a space the size of which changes as the member is moved, thus causing fluid contained within the space to be moved relative to both the member and the container.

(1) Note. The term "thrust member" is used to refer to a first member as defined above that is moved in or through a fluid contained in a chamber thereby forcing such fluid to be moved. The thrust member is connected to a load, i.e., a mechanism whose movement is to be retarded, and is moved by the load. Examples of a thrust member include; a piston (connected to a reciprocating piston rod), a blade or vane (connected to a rotating or oscillating shaft) and a flexible diaphragm (connected to a reciprocating or oscillating rod).

(2) Note. This and indented subclasses provide for a device known in the art as "shock absorber", "dashpot", "buffer", "check", and "cushion", these terms being only examples of the names used.

(3) Note. In this subclass, the chamber is usually a cylinder closed at one end and open at the other and the thrust member is a reciprocating piston having its piston rod extending through the open end. A vent orifice in either the piston or chamber wall permits restricted flow of fluid, usually air, between the chamber and its surroundings.

298 This subclass is indented under subclass 297. Device wherein either or both of said member or said container is made, at least in part, of expansible material.

(1) Note. The term "container" comprehends a chamber (e.g., cylinder, casing, etc.), as described in subclass 297, or a reservoir as described in subclass 314, or both together forming the enclosure in which fluid is moved by the thrust member.

SEE OR SEARCH CLASS:
267, Spring Devices, subclass 64.19, 64.23, 64.27 for a flexible wall or chamber for a spring device.

299.1 Controlled by an operator (e.g., vehicle driver) remote from retarder:
This subclass is indented under subclass 266. Internal-resistance motion retarder provided with means for regulating movement of said fluid (thereby regulating degree of resistance exerted by the fluid), which means is located at a distance from the device and actuated by a person.

(1) Note. Included in this subclass are shock absorbers (e.g., on axle of a vehicle) that are controlled by a driver who is within the vehicle.

SEE OR SEARCH CLASS:
280, Land Vehicles, subclasses 6.15+ for a general utility land vehicle including means, interposed between a vehicle body, chassis, or frame and running gear thereof, for altering height or levelness of the vehicle body, chassis, or frame which may or may not involve regulation of a fluidic suspension device; or subclasses 124.101+ for a

general utility wheeled land vehicle including resilient, shock absorbingly mounted running gear having preparatory elasticity selection means which may or may not involve a fluidic suspension device.

300 This subclass is indented under subclass 297. Device provided with means for preventing movement of said member relative to said container, said means being normally inoperative but being made operative by a user of the device.

301 This subclass is indented under subclass 297. Device wherein said fluid is gaseous atmosphere, and movement of said member within said container generates a subnormal atmospheric pressure in said container.

302 This subclass is indented under subclass 297. Device wherein a mechanism is connected to the device by an arm pivoted thereto so that movement of the mechanism causes movement of the arm to-and-fro in an arc of a circle, and wherein said arm is connected to a thrust member so as to cause movement of said thrust member to-and-fro in a straight line within a chamber.

303 This subclass is indented under subclass 302. Device provided with two thrust members facing in generally the same direction and moving to-and-fro within two chambers that lie in the same plane but not in the same line, wherein said arm is connected to said thrust members so as to cause movement of one member toward an end of its chamber and simultaneously cause movement of the other member away from an end of its chamber.

(1) Note. Usually the cylinders are hydraulically connected at their ends so that fluid forced out of one cylinder by movement of its piston toward its end is caused to flow into the other cylinder as its piston is moved away from its end.

304 This subclass is indented under subclass 302. Device provided with two thrust members facing oppositely and spaced apart from each other, wherein a connection from said arm is positioned in the space between said members.

(1) Note. In most devices of this subclass the pistons reciprocate within the same cylinder in the same direction so that when one piston is moving toward one end of the cylinder, the other piston is moving away from the opposite end of that cylinder, both pistons being caused to move by an arcuately oscillating arm or load member.

305 This subclass is indented under subclass 302. Device provided with means for converting to-and-fro arcuate motion of said arm about a pivot line into a to-and-fro straight-line motion of a thrust member lengthwise of said pivot line.

(1) Note. Examples of motion-converting means include screw-and-nut means inclined cam or wedge means.

306 This subclass is indented under subclass 297. Device wherein said member is moved to-and-fro in an arc of a circle within a container for fluid medium, said member being connected to a shaft or hub that is pivoted to said device.

307 This subclass is indented under subclass 306. Device wherein said member comprises a yieldable blade or comprises a blade having a portion biased away from said shaft or hub.

308 This subclass is indented under subclass 306. Device wherein said shaft is provided with an orifice extending generally diametrically therethrough for passage of fluid that is moved by said member.

(1) Note. In this subclass the thrust member (e.g., blade, vane or piston) divides the container (e.g., chamber, cylinder, etc.), into at least two compartments. As the member oscillates in one direction, one compartment decreases in volume and fluid therefrom flows through the orifice into the other compartment which correspondingly increases in volume.

309 This subclass is indented under subclass 308. Device wherein said shaft is also provided with an element modifying the size of the orifice, which element is manipulated by a person using the device to vary the size of the orifice.

SEE OR SEARCH THIS CLASS, SUBCLASS:

278, for a manually-adjustable thermostatic valve in a shock absorber.

282.1, for a manually-adjustable valve in the piston of a shock absorber.

310 This subclass is indented under subclass 306. Device provided with means for regulating movement of the fluid within said container, which means is controlled by a person using the device.

(1) Note. In this subclass the thrust member (e.g., blade, vane or piston) divides the container (e.g., chamber, cylinder, etc.), into at least two compartments. Fluid flows between the compartment through a passage, the size of which is regulated by the user.

SEE OR SEARCH THIS CLASS, SUBCLASS:

278, for a manually-adjustable thermostatic valve in a shock absorber.

282.1, for a manually-adjustable valve in the piston of a shock absorber.

312 This subclass is indented under subclass 297. Device wherein said container is an elongated cylinder having two extremities defining the length dimension thereof, and said member is a piston having two faces each oriented toward one of said extremities, to each of which faces is connected a shaft that reaches through a respective extremity, at least one of said shafts being connected to a load.

313 **With valve controlling fluid flow between chambers or compartments of the chamber:** This subclass is indented under subclass 297. Thrust member and variable volume chamber wherein a regulator permits restricted movement of fluid from one section to another section as the volumes of the sections change.

(1) Note. In this subclass, a solid piston reciprocates within and fills the area bounded by a cylinder, and a passage permits restricted flow of liquid from one compartment of the cylinder to the other compartment. The passage is usually provided with a valve that is adjustable to vary the restriction.

314 This subclass is indented under subclass 313. Device provided with an enclosed space additional to said container, which space is hydraulically connected to only one of said sections and accommodates liquid forced from said section by said member, or accommodates liquid stored therein to compensate for possible loss of liquid from the device.

(1) Note. To be considered as a “reservoir” the space referred to should not permit passage of liquid from one compartment to another, but rather should permit passage of liquid from a particular compartment to the reservoir and return of liquid from the reservoir to the particular compartment. Other subclasses (for which, see below) provide for an external passage hydraulically connecting two compartments of a cylinder and incidentally serving to store liquid outside of the cylinder.

SEE OR SEARCH THIS CLASS, SUBCLASS:

313, for a shock absorber having an external passage for circulation and storage of liquid.

318, for a shock absorber having an orifice in its piston and also having an external passage for circulation and storage of liquid.

315 This subclass is indented under subclass 314. Device wherein said container is a first cylinder and said enclosed space is a tubular volume bounded in part by said first cylinder and a second cylinder outside of and concentric with said first cylinder.

316 **Fluid through or around piston within chamber:** This subclass is indented under subclass 313. Reciprocating piston with fluid flow between chamber compartments wherein fluid moves from one section to another section via (a) an opening in said member extending from one face thereof to an opposite face thereof, or (b) a passageway that exists because said member does not fill the area bounded by the container in which the member moves.

(1) Note. Included in this subclass are devices wherein a piston reciprocates within a cylinder, and the piston is either of smaller diameter than the cylinder or has peripheral grooves extending in the direction of reciprocation, but in either case the difference in dimension forms the passageway for fluid flow.

SEE OR SEARCH THIS CLASS, SUBCLASS:

288, for a shock absorber having a passageway varying in area according to the position of a piston in the passageway.

317 This subclass is indented under subclass 316. Device wherein fluid moves via an opening in said member that extends between said faces.

SEE OR SEARCH THIS CLASS, SUBCLASS:

282.7, for a shock absorber having a piston provided with a one-way valve in its orifice.

289, for a shock absorber having a piston provided with an orifice, through which orifice extends an elongated tapered metering rod.

318 This subclass is indented under subclass 317. Device wherein said container is further provided with a hydraulic connection between said sections, said connection being outside of the container in which the member moves.

(1) Note. The external passage is in addition to an orifice in the piston, and is usually provided with a valve that is adjustable to vary the restriction to fluid flow.

319.1 Having an orifice adjustment for both jounce or bound (compression) and rebound:

This subclass is indented under subclass 317. Reciprocating piston with fluid flow through an orifice in which the flow restrictor regulates in one direction (i.e., the compression stroke) and in the other direction (i.e., expansion stroke).

319.2 Orifice size varied using a hand or hand tool:

This subclass is indented under subclass 317. Reciprocating piston with fluid flow through an orifice in which the dimension of the opening is regulated by a person: (a) turning, for example, a knob connected to the flow restrictor or the chamber cylinder or (b) using a wrench or screwdriver; both (a) and (b) located outside the container.

(1) Note. An example of subject matter in this subclass would be two plates, rotatable with respect to each other, having a hole in each plate. Slightly rotating one plate with respect to the other would create an opening smaller than either hole.

SEE OR SEARCH THIS CLASS, SUBCLASS:

278, for a manually adjustable thermostatic valve in a shock absorber.

299.1, for a retarder controlled by an operator (e.g., vehicle driver) remote from the retarder.

309, and 310, for a manually adjustable valve in a shock absorber wherein a blade oscillates.

320 This subclass is indented under subclass 316. Device wherein said opening extends in other than a straight line, whereby liquid flows through the opening in a meandering course.

321.11 Including means connecting thrust member to load:

This subclass is indented under subclass 297. A device wherein significance is attributed to means for attaching the first member to the mechanism so that the mechanism causes the member to move.

SEE OR SEARCH CLASS:

280, Land Vehicles, subclasses 124.125+ for a general utility wheeled land vehicle running gear suspension arrangement separately supporting a wheel upon an individual stub axle, especially subclasses 124.145+ or 124.154+ wherein the suspension arrangement includes a vertically extending strut.

322.12 Including protective shield for retarder:
This subclass is indented under subclass 266. Device which includes a sleeve, plate, or other covering means for preventing damage to parts of the retarder caused by rocks, mud, or other debris external to the device.

322.13 Including valve:
This subclass is indented under subclass 266. Device wherein significance is attributed to an element or assembly which regulates fluid flow through an orifice means.

(1) Note. The valve means may have a fixed, preset location, or it may move in response to fluid pressure acting upon a surface area of the valve means.

322.14 Foot valve:
This subclass is indented under subclass 322.13. Device wherein the container includes a cylindrical chamber, and the flow-regulating element or assembly is located at an end of the chamber to regulate fluid flow into and out of the cylinder.

(1) Note. Devices found in this subclass are of the type described in the (3) Note of patent subclass 297.

322.15 Piston valve:
This subclass is indented under subclass 322.13. Device wherein the container includes a cylindrical chamber having a piston which reciprocates within the chamber, the flow-regulating element or assembly mounted on or in the piston to regulate fluid flow through an aperture in the piston.

322.16 Including seal or guide:
This subclass is indented under subclass 266. Device wherein significance is attributed to a component which is adapted to (a) prevent fluid passage either through an aperture in the container or between related parts of the retarder, or (b) determine the path of movement of one part relative to another.

322.17 Between piston rod and cylinder:
This subclass is indented under subclass 322.16. Device wherein the container includes a cylindrical chamber having a piston which reciprocates within the chamber, and the component is located at, and functions between, the interface of an opening in an end wall of the chamber and a shaft projecting from the piston through said opening.

SEE OR SEARCH CLASS:
277, Seal for a Joint or Juncture, for a generic sealing means or process, subclasses 500+ for a dynamic, circumferential, contact seal for other than a piston.

322.18 Between piston and cylinder:
This subclass is indented under subclass 322.16. Device wherein the container includes a cylindrical chamber, the first member is a piston which reciprocates within the chamber, the component located at and functioning between the interface of the piston and the chamber.

SEE OR SEARCH CLASS:
277, Seal for a Joint or Juncture, for a generic sealing means or process, subclasses 434+ for a piston ring or piston ring expander or seat therefor.

322.19 Cylinder structure:
This subclass is indented under subclass 266. Device wherein the container includes a cylindrical chamber, and significance is attributed to a design or construction feature of the container.

322.2 Having connection for side-mounted valve type:
This subclass is indented under subclass 322.19. Cylinder structure in which a particular attachment fixes a regulator perpendicular to the container axis.

322.21 Having means for filling or recharging:
This subclass is indented under subclass 322.19. Device including a means associated with the container permitting access to its interior for introducing dampening media into the device.

SEE OR SEARCH CLASS:
267, Spring Devices, subclass 64.28 for means for charging or discharging a fluid spring device.

322.22 Thrust member structure:
This subclass is indented under subclass 266. Device wherein significance is attributed to a design or construction feature of a first member that is moved in or through the fluid contained by the device.

(1) Note. The thrust member is not limited to a certain configuration, it may be, for example, either a piston or a movable diaphragm.

322.50 Using viscosity of fluid medium:
This subclass is indented under subclass 266. Device wherein the medium is a flowable material, the material has a characteristic resistance to flow and the resistance to flow is used to restrain motion.

SEE OR SEARCH CLASS:
74, Machine Element or Mechanism, subclass 574 for a fluid vibration dampener for flywheels and rotors.

323 This subclass is indented under subclass 78. Device comprising three distinct frictional contacting members.

SEE OR SEARCH THIS CLASS, SUBCLASS:
250+, for brake shoe elements, per se.

324 This subclass is indented under subclass 323. Device wherein shoe movement is effected by rotation of a contoured element sliding against a shoe extremity.

SEE OR SEARCH THIS CLASS, SUBCLASS:
329, 330, 332, 338, 339, for other rotary cam actuating means.

SEE OR SEARCH CLASS:
192, Clutches and Power-Stop Control, subclass 78, for cam operated expanding clutch devices.

325 This subclass is indented under subclass 78. Device comprising two distinct frictional contacting members.

SEE OR SEARCH THIS CLASS, SUBCLASS:
250+, for brake shoe elements, per se.

326 This subclass is indented under subclass 325. Device wherein shoe movement is effected by actuator means at the extremities of each frictional contacting member.

327 This subclass is indented under subclass 325. Device wherein the holding or locating means for frictional contacting members are contiguous to the nonactuated ends of the members.

SEE OR SEARCH THIS CLASS, SUBCLASS:
341, for anchors of more general utility in expanding, transversely movable brakes.

328 This subclass is indented under subclass 327. Devices wherein the plural holding or locating means use the same projection for rotational or sliding restraint.

329 This subclass is indented under subclass 328. Device wherein shoe movement is effected by rotation of a contoured element sliding against the extremities of the shoes.

SEE OR SEARCH THIS CLASS, SUBCLASS:
324, for three shoe rotary cam actuating means and see notes thereunder for other similar means.

330 This subclass is indented under subclass 327. Device wherein shoe movement is effected by rotation of a contoured element sliding against the extremities of the shoes.

SEE OR SEARCH THIS CLASS, SUBCLASS:
324, for three shoe rotary cam actuating means and see notes thereunder for other similar means.

331 This subclass is indented under subclass 325. Device wherein contiguous shoe ends are linked without restraint relative to supporting wheel structure.

332 This subclass is indented under subclass 331. Device wherein shoe movement is effected by rotation of a contoured element sliding against a shoe extremity.

SEE OR SEARCH THIS CLASS, SUBCLASS:
324, for three shoe cam actuating means and see notes thereunder for other similar means.

333 This subclass is indented under subclass 331. Device wherein one shoe extremity is held or located relative to supporting wheel structure.

SEE OR SEARCH THIS CLASS, SUBCLASS:
341, for anchors of more general utility in expanding transversely movable brakes.

334 This subclass is indented under subclass 325. Device wherein each shoe is held or located by means applied to an extremity on one shoe remote from the other shoe extremity having holding or locating means.

SEE OR SEARCH THIS CLASS, SUBCLASS:
341, for anchors of more general utility in expanding transversely movable brakes.

335 This subclass is indented under subclass 78. Device including means to confine the movement of a frictional contacting member to a path transversely of the wheel axis.

(1) Note. A pin and slot arrangement, for example, may provide a radial guide for a brake shoe, suitable for this subclass, and still allow lateral shoe movement.

SEE OR SEARCH THIS CLASS, SUBCLASS:
340, for devices which restrict the lateral movement of a brake shoe, though not necessarily limiting the movement to a radial one.

336 This subclass is indented under subclass 78. Device wherein the frictional contacting member is a single internal circumferential shoe with closely abutting ends.

337 This subclass is indented under subclass 336. Device including a holding or locating means remote from gapped ends of the band.

SEE OR SEARCH THIS CLASS, SUBCLASS:
341, for anchors of more general utility in expanding transversely movable brakes.

338 This subclass is indented under subclass 337. Device wherein shoe movement is effected by rotation of a contoured element sliding against the gapped ends of the shoe.

SEE OR SEARCH THIS CLASS, SUBCLASS:
324, for three shoe rotary cam actuating means and see notes thereunder for other similar means.

339 This subclass is indented under subclass 336. Device wherein shoe movement is effected by rotation of a contoured element sliding against the gapped ends of the shoe.

SEE OR SEARCH THIS CLASS, SUBCLASS:
324, for three shoe rotary cam actuating means and see notes thereunder for similar means.

340 This subclass is indented under subclass 78. Device including means to restrict the movement of a frictional contacting member along the axis of wheel rotation.

(1) Note. A resilient pad bearing against the arcuate edge of a brake shoe, for example, may restrict lateral shoe movement and still not confine the shoe to radial movement.

SEE OR SEARCH THIS CLASS, SUBCLASS:
335, for devices which in limiting brake shoe to radial movement may also restrict the lateral movement.

341 This subclass is indented under subclass 78. Device for holding or locating a frictional contacting member relative to the supporting wheel structure.

SEE OR SEARCH THIS CLASS, SUBCLASS:

327+, 333 and 337, for more specialized applications of holding or locating means.

342 This subclass is indented under subclass 78. Device including means to further urge brake elements into motion stopping position, which means are solely responsive to the initial actuation of the device.

SEE OR SEARCH CLASS:

192, Clutches and Power-Stop Control, subclasses 32+, for clutches - the action of which is initiated by manipulation, upon which the engagement is completed without further actuation.

343 This subclass is indented under subclass 78. Device wherein the means to urge brake elements into motion stopping position includes an inclined plane element sliding against the end of a brake element.

344 This subclass is indented under subclass 152. Device where the vehicle is bicycle-like with two or three wheels impelled by the rider.

SEE OR SEARCH THIS CLASS, SUBCLASS:

24.11+, for velocipede brakes.

345 This subclass is indented under subclass 152. Device including two or more units for fluid pressure source, or pulsators, actuated by the same operating member.

(1) Note. Generally, these units are so isolated that failure of one will not affect another.

SEE OR SEARCH CLASS:

60, Power Plants, subclass 549 for a power driven master cylinder means supplying fluid through separate pulsator circuits to nominal plural brake structure; subclass 561 for a pulsator system comprising parallel pulsators with a pressure balancing shuttle therebetween; subclass 562 for parallel pulsators in which the master of one is driven by the master of the other by a resilient, fluid or lost motion connection; and subclasses 579+ for multiple master cylinders associated with a pulsator device.

346 This subclass is indented under subclass 152. Device wherein a reaction force on an applied brake shoe is transmitted to at least one other shoe.

SEE OR SEARCH THIS CLASS, SUBCLASS:

141, for a vehicle fluid pressure brake controlled by momentum of the vehicle.

347 This subclass is indented under subclass 152. Device including fluid pressure means responsive to operating members for initial rapid elimination of “play” at low “mechanical” advantage followed by actual braking at high “mechanical” advantage.

SEE OR SEARCH CLASS:

74, Machine Element or Mechanism, subclass 516, for control lever and linkage systems with variable output force.

348 This subclass is indented under subclass 152. Device wherein an operating member controls both (1) a source of stored energy, such as compressed air or vacuum, to initially eliminate “play” in the brake system as well as then (2) actuate the actual brake means.

349 This subclass is indented under subclass 152. Device arranged to vary the braking action of forward wheels with respect to that of rearward wheels.

(1) Note. In some instances such variation is during initial braking only.

SEE OR SEARCH THIS CLASS, SUBCLASS:

204, for equalizer position adjuster means.

347, for hydraulic quick-slack-take-up pulsator means.

SEE OR SEARCH CLASS:
303, Fluid-Pressure and Analogous Brake Systems, subclasses 6.01+ for braking pressure delivered to a plurality of motors - usually differently related to the distributing means.

350 This subclass is indented under subclass 152. Device wherein one or more steering wheel brake means are rendered inoperative, or released, responsive to actuation of steering mechanism.

(1) Note. This is generally considered a safety feature to avoid skidding.

351 This subclass is indented under subclass 152. Device wherein a predetermined amount of fluid is trapped in a brake cylinder as the brake is released so as to limit and/or regulate the amount of "play".

SEE OR SEARCH THIS CLASS, SUBCLASS:
79.5, for wear take-up or compensating means on transversely movable wheel brakes.
196, for slack position adjuster means.

SEE OR SEARCH CLASS:
60, Power Plants, subclass 590 for a pulsator of general utility having a condition responsive device limiting the return flow from a biased slave.

352 This subclass is indented under subclass 152. Device including means to release air bubbles from the brake system or means to flush or fill the system.

SEE OR SEARCH CLASS:
60, Power Plants, subclass 453 for means for purging, cleaning or separating undesirables from a motive fluid and subclass 584 for structure for bleeding, charging, discharging or adjusting a pulsator volume.
220, Receptacles, subclasses 86.1+, for container filling devices, per se.
222, Dispensing, appropriate subclasses for bleeding and filling means in combination with dispensing means.

353 This subclass is indented under subclass 152. Device including means to trap fluid in the brake system to hold the brakes applied.

SEE OR SEARCH THIS CLASS, SUBCLASS:
265, for brake lock means, per se.

SEE OR SEARCH CLASS:
303, Fluid-Pressure and Analogous Brake Systems , subclass 89, for brake system lock means, per se.

354 This subclass is indented under subclass 152. Device including means for selective application of braking force to one wheel at a time.

(1) Note. This is often an expedient for steering - as in the case of an airplane on the ground - or for providing traction for one of two differentially driven wheels when the other is slipping in mud or ice.

SEE OR SEARCH THIS CLASS, SUBCLASS:
16, for independent wheel brakes for non-rail vehicles.

SEE OR SEARCH CLASS:
303, Fluid-Pressure and Analogous Brake Systems, subclass 9.61 for separately and simultaneously controlled multiple motor systems.

355 This subclass is indented under subclass 152. Device including means for supplying liquid and/or air pressure from a pump or pump tank.

(1) Note. A simple and direct manual or pedal operated force is not considered to be a "pump" for this subclass.

(2) Note. Control of the brake is generally by means of valving.

SEE OR SEARCH THIS CLASS, SUBCLASS:
348, for power quick-slack-take-up means.

SEE OR SEARCH CLASS:
60, Power Plants, appropriate subclasses for a booster device combined with a master cylinder.

91, Motors: Expansible Chamber Type, appropriate subclasses for a booster, per se.

356 This subclass is indented under subclass 355. Device wherein the non-manual power source is of the vacuum or sub-atmospheric pressure type.

357 This subclass is indented under subclass 356. Device including supplementary hand or pedal operated power means.

(1) Note. Both manual and non-manual power means are subject to a common control means.

(2) Note. The two means may be applied sequentially or simultaneously.

SEE OR SEARCH THIS CLASS, SUBCLASS:
106, for multiple operators for vehicle brakes.
359, for liquid and manual power brake means.

358 This subclass is indented under subclass 355. Device wherein the nonmanual power source is of the hydraulic type.

359 This subclass is indented under subclass 358. Device including supplementary hand or pedal operated power means.

(1) Note. Both manual and nonmanual power means are subject to a common control means.

(2) Note. The two means may be applied sequentially or simultaneously.

SEE OR SEARCH THIS CLASS, SUBCLASS:
106, for multiple operators for vehicle brakes.
357, for vacuum and manual power brake means.

360 This subclass is indented under subclass 355. Device including supplementary hand or pedal operated power means.

(1) Note. This is the locus for combinations of mechanical and manual power sources applied to brakes.

361 This subclass is indented under subclass 152. Device pertaining to the structure immediately adjacent the wheel brake or brake shoe.

362 This subclass is indented under subclass 361. Device wherein a frictional contacting member shifts radially outward of the wheel axis to engage a brake drum.

SEE OR SEARCH THIS CLASS, SUBCLASS:
78+, for expanding transversely movable wheel brakes.

363 This subclass is indented under subclass 362. Device wherein the fluid pressure operator is located in the space separating adjacent frictional contacting members.

364 This subclass is indented under subclass 363. Device wherein the operator is of the type having two driven rods which separate to actuate brake shoes.

SEE OR SEARCH CLASS:
92, Expansible Chamber Devices, subclass 50 for oppositely movable walls of a common chamber for plural flexible wall working members and subclass 75 for oppositely movable walls of a common chamber with relatively movable working members.

365 This subclass is indented under subclass 361. Device wherein the fluid pressure operator for a brake element moves normal to the axis of the wheel to actuate the brake.

366 This subclass is indented under subclass 361. Device wherein the fluid pressure operator for a brake element is curved or of circular configuration.

(1) Note. Generally, the operator is a flexible or resilient bag-like member.

367 This subclass is indented under subclass 366. Device wherein the fluid pressure operator moves parallel to the axis of the wheel to actuate the brake.

368 This subclass is indented under subclass 361. Device wherein the fluid pressure operator for a brake element moves parallel to the axis of the wheel to actuate the brake.

369 This subclass is indented under subclass 361. Device wherein the frictional contacting element shifts parallel to the axis of the wheel to actuate the brake.

(1) Note. Here are operators for brakes of the "disc" type.

SEE OR SEARCH THIS CLASS, SUBCLASS:
71+, for disc brake details.

370 This subclass is indented under subclass 369. Device wherein the axially movable brake member is a relatively small element acting against outer portions of the radial face of the wheel.

(1) Note. Included here are operators for "caliper" brakes.

SEE OR SEARCH THIS CLASS, SUBCLASS:
73, for rim grip disc brakes.

371 PLASTIC DEFORMATION OR BREAKAGE OF RETARDER ELEMENT (E.G., IMPACT ABSORBER):
This subclass is indented under the class definition. Device including first and second relatively movable members, wherein the second member includes an element adapted to be either fractured or deformed beyond its elastic limit, which element acts to restrain the relative motion.

SEE OR SEARCH CLASS:
73, Measuring and Testing, subclasses 514.12+ for fluid or fluent material dampening of an inertial member in an acceleration measuring apparatus and subclass 514.14 for vibration dampening in an inertial-type acceleration measuring apparatus.
74, Machine Element or Mechanism, subclass 492 for plastically deformable steering columns.
280, Land Vehicles, subclass 777 for a steering column or steering wheel that is collapsible in response to a collision.
293, Vehicle Fenders, subclass 133 for a one-shot type (e.g., plastically deformable or breakable) bumpers.

372 And subsequent reverse deformation:
This subclass is indented under subclass 371. Device wherein, after once being deformed, the element is again deformed in a direction opposite to that of the first deformation.

373 Element twisted:
This subclass is indented under subclass 371. Device wherein the relative motion is converted into torsional loading, and the element is twistably deformed thereby.

374 This subclass is indented under subclass 371. Element extruded through or around tool: Device wherein the cross section of the element has a two-dimensional configuration, and the deformation is a change in that configuration as the element moves relative to a tool device (e.g., through a die, about a mandrel).

375 Element severed by cutting tool:
This subclass is indented under subclass 371. Device wherein a part of the element is adapted to be progressively sheared from another part thereof as the element moves relative to a shearing device.

376 Frangible element:
This subclass is indented under subclass 371. Device wherein the moving member impacts upon the element or a member in contact with the element and the element is adapted to break as a result of the impact.

377 Crushable element:
This subclass is indented under subclass 371. Device wherein the element is adapted to be compacted by the energy of motion of the first member relative to the second member.

378 INERTIA OF DAMPING MASS DISSIPATES MOTION (E.G., VIBRATION DAMPER):

This subclass is indented under the class definition. Device including first and second relatively movable members, wherein the second member includes a relatively heavy damping mass and the motion is restrained by an opposing force resulting from the inertia of the damping mass.

SEE OR SEARCH THIS CLASS, SUBCLASS:

218, for a vibration dampener for a drum, wheel or disc.

322.5, for fluid, viscous, torsional dampener.

SEE OR SEARCH CLASS:

73, Measuring and Testing, subclasses 514.12+ for fluid or fluent material dampening of an inertial member in an acceleration measuring apparatus and subclass 514.14 for vibration dampening in an inertial-type acceleration measuring apparatus.

74, Machine Element or Mechanism, subclass 574 for vibration dampening means for flywheels for rotors.

174, Electricity: Conductors and Insulators, subclass 42 for vibration dampening means associated with an overhead conductor.

192, Clutches and Power-Stop Control, subclass 30 for a clutch vibration dampener, subclasses 70.17+ for vibration dampening means in the form of resilient torque connections between a clutch elements and its associated shaft and subclasses 200+ for resiliently carried clutch elements carried on a hub wherein the resilient connection dampens vibrations between the elements.

267, Spring Devices, subclasses 140.11+ for a spring device including energy absorbing means.

416, Fluid Reaction Surfaces (i.e., impellers), subclass 134 for nonmetallic vibration dampeners for impellers.

464, Rotary Shafts, Gudgeons, Housings, and Flexible Couplings for Rotary Shafts, subclass 180 for the particular vibration dampening means for a rotary shaft or flexible coupling for rotary shafts.

379 Resiliently supported damping mass:

This subclass is indented under subclass 378. Device wherein the damping mass is carried by an elastically deformable means.

380 Supported by mechanical spring:

This subclass is indented under subclass 379. Device wherein the elastically deformable means is a mechanical element consisting of solid material, such as a coil spring, leaf spring, etc.

381 FRICTIONAL VIBRATION DAMPER:

This subclass is indented under the class definition. Device wherein a force tends to vibrate a first member, a second member contacts the first member, and the vibration is restrained or dissipated by a resistance to sliding between the surfaces of the members.

SEE OR SEARCH THIS CLASS, SUBCLASS:

129, for a shock absorber with friction brakes operated upon the rise or fall or the vehicle body.

SEE OR SEARCH CLASS:

73, Measuring and Testing, subclasses 514.12+ for fluid or fluent material dampening of an inertial member in an acceleration measuring apparatus and subclass 514.14 for vibration dampening in an inertial-type acceleration measuring apparatus.

267, Spring Devices, subclasses 9+ for a mechanical spring including a frictional vibration dampener and subclass 140.1 for a spring device including frictional energy absorbing means.

399, Electrophotography, subclass 210 for damping or braking a slit exposure scanning carriage.

382 MISCELLANEOUS:

This subclass is indented under the class definition. A device not already provided for.

END